

# Kalanchoes for the Window Garden

CLAUDE HOPE

EACH year, during the winter, one frequently sees articles devoted to house plants and window gardens. By such means the list of suitable house plants has grown to be a long one, yet one seldom sees any mention of the genus *Kalanchoe* as a source of suitable plants.

To focus attention on these plants, so admirably suited to living room conditions, this brief survey has been prepared, illustrating and describing several fascinating species with which possibly the window gardener is unacquainted.

Kalanchoes possess most of the characteristics of make-up and behavior that are essential to good house plants. They grow best and flower during the winter months. Because they are all succulent, they do not object to dry atmosphere, nor to rather rapid and wide variations in soil moisture. They like living room temperatures. They seem to tolerate, for the most part, living room light conditions, even though they need more sunlight than many of the "cast-iron" house plants. In addition to these essentials, they present various attractive features in flower or leaf characters. Those window gardeners who like to collect related species will find kalanchoes to their taste. Probably 30 species can be obtained at the present time by diligent search, and there is always the chance of getting one of the other 75 or more species.

The genus *Kalanchoe* belongs to the subfamily *Kalanchoideae* of the *Crasulaceae*. By some authorities, the genus includes all the members of this subfamily; by others, the genera *Bry-*

*ophyllum* and *Kitchingia* are separated from *Kalanchoe*. The latter treatment by Alwin Berger (1)<sup>1</sup> is followed here. The subfamily is distinguished from the rest of the *Crasulaceae* by the four-parted flowers with stamens in two series of four each. The three genera may be separated by the following abbreviated key:

1. Stamens inserted at the base of the tube; flowers mostly pendulous, large; calyx large, often tubular, or inflated tubular. The leaves almost always produce plantlets in the margins ..... *Bryophyllum*
2. Stamens inserted about the middle of the tube or above
  - a. Ovaries spreading; styles long; corolla tube inflated-campanulate; flowers more or less pendulous ..... *Kitchingia*
  - b. Ovaries contiguous, styles often shorter than ovaries; corolla various, usually urceolate at the base. Flowers nearly always upright

*Kalanchoe*

In this issue only the kalanchoes will be discussed; representatives of the other two genera will be considered later. Most of the species included here are available in the trade, and only a few species are omitted here that may be purchased in this country.

The cultural requirements of these plants are simple. A light, well-drained potting soil is best; a good mixture would be equal parts of leaf soil, loam and fine sand. Results, so far, indicate that soil reaction is not

<sup>1</sup>Numbers in parentheses refer to literature cited at the end of this article.

important. The plants illustrated here were grown in a distinctly acid soil. Equally good plants of a few species have been grown successfully in alkaline soil.

Although the plants are succulent, they require moderately good soil moisture during the season of active growth in the fall and early winter. Following the flowering season, most species are almost dormant until midsummer, and during this period little water is required. The succulent nature of the plants is helpful, however, if one wants to abandon them over the week-end, or, better still, if one forgets to water them! For best growth, and particularly for flowers, they should be grown in the sunniest windows. If garden space is available, the plants may be plunged outdoors during the frost free period.

Few plants are more easily propagated than most of the kalanchoes. Either shoots, leaves or seeds may be used. Cuttings may be rooted any season of the year, but for good plants during the winter, it is better to start the young plants in July or August. If leaf cuttings are used, it is better, in most cases, to take entire leaves, with the petioles attached. However, leaf fragments produce plantlets freely in several instances (*K. tomentosa*, *K. beharensis*, *K. orgyalis*). Plantlets are produced on the roots of some species, notably *K. tomentosa* and *K. beharensis*.

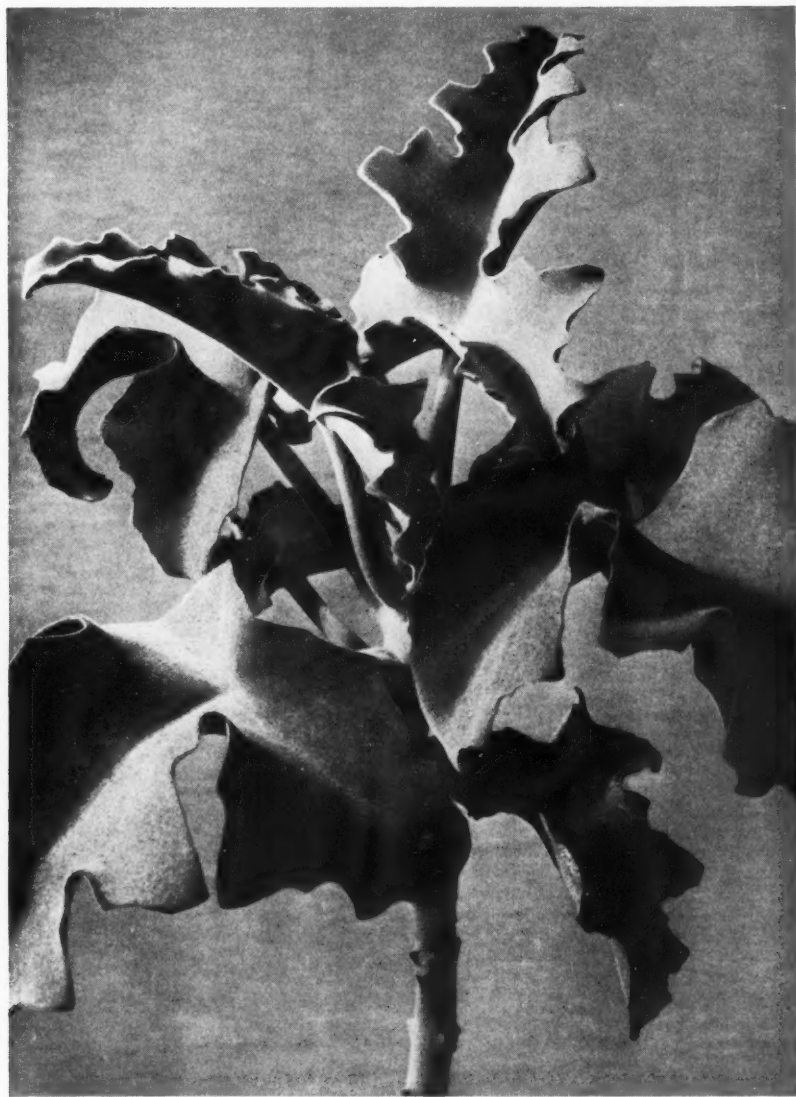
A few species of the group have a world wide distribution in the tropics, but most of them are confined to Madagascar and/or South Africa. None of the species is hardy and will not survive a frost severe enough to reach the crown of the plant. Out of doors in California and Florida, their flowering season for the most part is late fall and early winter. In the

greenhouse it varies with the species from fall to spring.

*Kalanchoe aromatica* Perrier (see frontispiece) from Madagascar is one of the less attractive species of the group, both in foliage and in flower, and is remarkable only for its aromatic glands. Its petiolate leaves are triangular-lanceolate with small dentate-crenate margins. The flowers are of moderate size for the genus with greenish-white ovate corolla lobes about 1 cm<sup>2</sup> long and about 6 mm wide sharply reflexed against the tube and marked with reddish-purple veins which converge at the base to form almost a blotch. The tip of each segment is cupped into a hood-like pouch such as is found in some crassulas. The entire plant, except for the corolla, is covered with gland-tipped hairs of various lengths. These exude an aromatic secretion that makes the plant sticky to the touch and gives it an odor much like that of pine resin. This is one of the small perennial species that grows well only during the winter. The flowers come in late November and December in the greenhouse near Washington, D. C.

*Kalanchoe beharensis* Drake del Castillo (see page 3) is a species that eventually attains the proportions of a small tree. Madagascar collectors have noted specimens as tall as 20 feet, often with several branches. Young plants are very handsome, and the old plants are striking, if not handsome. For several years this plant has been sold under the erroneous name of *Kitchingia mandrakensis*, a name which belongs to a plant quite unlike this kalanchoe. *K. beharensis* has, perhaps, the largest leaves of the genus. Occasionally they are as much as 40 cm long and 40 cm across the

<sup>2</sup>For the benefit of those unfamiliar with the metric scale, 1 cm equals 10 mm and, roughly, 2.5 cm equal 1 inch.



*Claude Hope*

*Kalanchoe beharensis*

base, where they are widest. The leaves are, in general, broad-triangular-hastate with a peltate attachment of the almost terete petiole, and margins vary from crenate-sinuous to pinnate lobed. The one illustrated is intermediate in form. The gray-green color is almost obscured by the dense mass of short-stalked, three-branched hairs that cover the entire plant. These hairs are usually a pleasing rusty brown on the upper surfaces of the leaves and silvery gray below. The pubescence often is shed from old leaves and stems in rather large tufts. As a rule the stems have no more than eight or ten pairs of leaves at any one time. The available illustrations of the plant in its native habitat in the desert of southwestern Madagascar show it with only two or three pairs of leaves. The stem has one peculiarity worth mentioning. The leaf scars are enlarged and somewhat projecting, almost triangular in shape, and they are provided, at each of the angles, with stout, short, and hard spine-like structure.

The indoor gardener, obviously, would need to replace his plants occasionally with smaller plants. However, this is easily accomplished, either by potting off the young plantlets produced by the roots around the edge of the pot, or by leaf cuttings, either of whole leaves or of portions, or by taking the top of the plant as a cutting. This plant needs more sun than do most members of the genus and, on that account, would respond to plunging out of doors during the summer. It is not likely to flower, but, as the flowers are scarcely ornamental, that is not a serious objection.

Probably most people interested in plants are familiar with *K. Blossfeldiana* von Poellnitz (*K. globulifera* var. *coccinea* Perrier) (page 5), a

comparatively new arrival among kalanchoes in this country. Those who do not know the plant by name will recognize in the picture the familiar Christmas kalanchoe. Commercially, this is easily the most important species of the genus and is so well known as to need no description. Florists prefer to propagate this one by seeds, which are produced abundantly. However, the plant is a short-lived perennial and may be propagated easily by cuttings.

*Kalanchoe bracteata* Scott Elliott (*K. Nadyae* Hamet), (page 7) is found in approximately the same portions of Madagascar as is *K. beharensis*. It, too, is woody but there the similarity ends. In some respects this is one of the more attractive species of the genus. It is a much branched, small shrub which in nature attains a height of at least five feet, and perhaps more, but its maximum size does not seem to be recorded anywhere.

The leaves are rather variable in appearance due to the presence or absence of a covering of closely appressed scale-like hairs. Sometimes these hairs are dense enough to give the leaves a silvery-white appearance; comparatively early in the life of the leaf, however, this covering is shed. The leaf then is rich dark green, glossy, and entirely glabrous. Usually 20 to 40 mm long and 15 to 20 mm wide, the leaves are ovate to ovate-orbicular, acutish to obtuse above, and rounded below or tapering abruptly into a narrow petiole about 5 to 7 mm long. The margins are entire, without a suggestion of indentation. The leaves are less fleshy in appearance than those of most species, but they are still distinctly succulent. The stems are terete and moderately woody; in the latter respect they, too, are scarcely characteristic of the genus. Shoots that have grown





*Claude Hope*

*Kalanchoe Blossfeldiana*

rather rapidly have fairly long internodes, but, on the whole, the plant presents a pleasing leafy appearance.

The flowers of *K. bracteata* are very pretty. They are borne erect in a panicle-like inflorescence, from 3 to 5 cm long and 2 to 4 cm across, composed of three to five dense, short-branched cymes. The corolla is an inflated urceolate tube about one cm long with four small reflexed, orbicular lobes. The color is near ruby red in the upper portion, but in the lower part, paler, with a greenish tint.

This species may be propagated either by leaf or shoot cuttings or by seeds. Its flowers come in February in the greenhouse. The plant shown on page 7 is a young cutting that flowered within a few months after it was rooted. Consequently, the photograph does not show the typical habit of the plant.

*K. crenata* Haworth (page 8) is one of the species distributed pretty well throughout the tropics of the world, with its chief centers in South Africa and in India. No exception to the usual situation in widely distributed plants, this species has accumulated a number of botanical names. No effort will be made to list them here, however.

The plant is one of the less attractive members of the group and is not appreciably better looking when in flower. It is a herbaceous perennial, producing new flowering growths from the base each year.

The moderately thin, petiolate, glabrous leaves are usually ovate to elliptical, 5 to 8 cm long and 4 to 5 cm wide. Their margins are doubly crenate-dentate. Their color is a dull dark green. Above the sixth to tenth pair of leaves, the internodes are rather abruptly elongated to form the long slender peduncle which carries

two or three pairs of bracteate leaves. At the same time the stem, which is glabrous below, develops a fairly dense covering of simple and glandular hairs. This pubescence extends to all parts of the inflorescence including the calyx, but not the corolla.

The inflorescence, very well shown in the photograph, is composed of a number of indeterminate one-sided racemes arranged in a panicle. The pedicels are short, moderately slender, and support the flowers in an upright position. The corolla, with a greenish yellow tube about 10 mm long, has bright yellow lobes about 3 to 4 mm long, standing at right angles to the tube.

*K. crenata* may be propagated by cuttings or by seeds which are produced freely. In greenhouses where it is permitted to seed, it self-sows readily, and may become almost a weed. The flowering season is long, extending from January to as late as June. The plants are almost dormant from June to August, and during that period have only a rosette of one or two pairs of leaves. It might be summed up by the statement that it is a species primarily for the collector.

*Kalanchoe flammea* Stapf (page 9), in contrast with *K. crenata*, is one of the most attractive members of the group. Hamet (6), in his monograph, included this with the extremely complex and polymorphic *K. laciniata* (L.) De C. Berger (1), however, segregates it from the complex, and surely he had ample reason for so doing. There is a beautiful illustration of this plant in the Curtis Botanic Magazine (3).

It is a glabrous plant throughout. The cupped leaves, not greatly unlike those of *K. Blossfeldiana*, are ovate, obtuse, rounded at the base except for the abrupt taper to the petiole, and



*Lilian A. Guernsey*

*Kalanchoe bracteata*



*Lilian A. Guernsey*

*Kalanchoe crenata*



*Lilian A. Guernsey*

*Kalanchoe flammea*

obscurely sinuate-crenate on the margin. They are light, clear green, with surface texture that is dull, but not glaucous. The petiole is not over one cm in length, and rather broad. Like most species of this genus, the inflorescence is borne on a long peduncle which carries two or three pairs of small bract-like leaves. The flowers are in a rather dense, corymbiform cyme. The calyx is scarcely tubular and its segments are sublinear, not over 4 mm long. The corolla is large and showy. The pale yellow tube is 10 to 12 mm long and almost cylindrical, except for the faint four angles. Its lobes spread at right angles to the tube, and are broad ovate, and acute. The open flower frequently measures as much as 20 to 25 mm across. The color varies a little in shades of orange to scarlet. Sometimes it gives the effect of bright orange faintly washed with red, and at other times it is a rich scarlet.

As a cut flower, *K. flammea* is valuable both for its fine color and for its unusual keeping qualities. On the plant an inflorescence may remain attractive for two months. While they won't last that long when cut, they may be expected to keep in good shape for about two weeks. Its one fault in this respect is that it flowers during March and April when flowers are plentiful. It stays almost dormant from about July until late January.

*Kalanchoe Hildebrandtii* Baillon (*K. gomphophylla* Baker), (see page 11), is a shrubby plant rather similar in vegetative growth to *K. bracteata*, to which, indeed, it is closely related. Its leaves differ chiefly in being ovate, obtuse, gray green, and in retaining the triparted, scale-like pubescence. The flowers are not as attractive by any means as those of *K. bracteata*, and they are very small, measuring about

3 to 5 mm in length, and are pale greenish yellow. They are borne in dense cymes arranged in panicles.

This is a woody species of very slow growth. In its native habitat in Central Madagascar, it attains the proportions of a small tree, often surpassing 5 meters (16.5 ft.).

*Kalanchoe longiflora* Schlechter is a native of Natal, South Africa. A very good illustration is to be found in Wood's Natal Plants (12). There is some indication that this plant may be masquerading as *K. somaliensis* in some of the western nurseries.

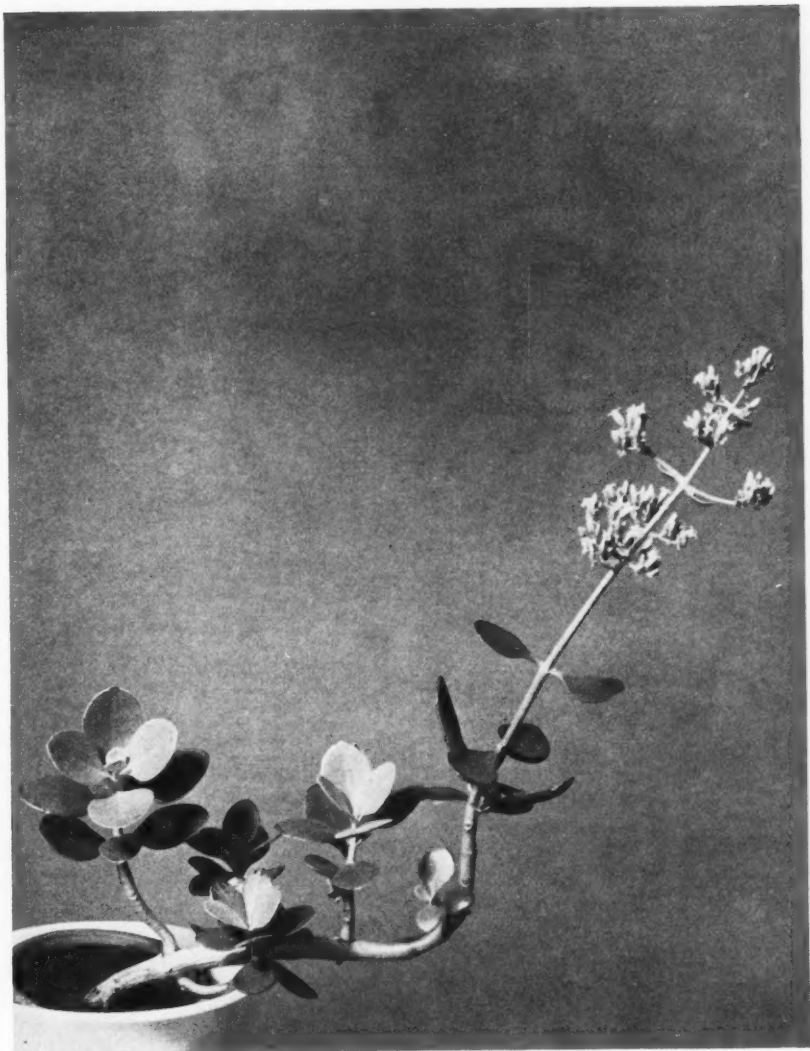
It is a fairly robust glabrous plant, with perhaps more leaves than many species. The leaves are broad ovate to orbicular, coarsely and sharply dentate except for the basal third, subsessile, and about 7 to 8 cm long, and 5 to 6 cm wide. They are light gray green sometimes slightly reddened by exposure to the sun. The stem is distinctly four angled throughout. It attains a height of about 60 to 75 cm, over half of which is in the peduncle and inflorescence.

The inflorescence is the typical panicle-like arrangement of moderately dense, many-flowered cymes. As in most kalanchoes, the calyx is very small. The corolla has a four-angled, greenish yellow tube about 16 mm long and four bright yellow, orbicular mucronate segments about 3 mm long. The anthers have minute spheres attached at the tip, a feature seen in only a few other species.

When in full flower, the rather massive inflorescence of this species is mildly attractive. In a vigorous vegetative state, the glossy, luxuriant, gray-green foliage is pleasing. In no way, however, is the plant particularly striking in comparison with several of the other species.

*Kalanchoe marmorata* Baker (see





*Claude Hope*

*Kalanchoe Hildebrandtii*

pages 13 and 14), when well grown, is one of the distinctly handsome species of the group. It is native to Erythrea, Ethiopia, and Somaliland, in the mountains for the most part. *K. macrantha* Baker, *K. grandiflora* A. Rich, and *K. somaliensis* Hooker f. are all included under this name by Hamet, but Berger (1) distinguishes *K. somaliensis* as a species with leaves larger, lighter colored, more shallowly sinuate-dentate, less flecked or mottled with reddish brown, and with a corolla tube cylindrical rather than rectangular in the upper portion.

*K. marmorata* is illustrated in Curtis' Botanical Magazine in 1894 (2) and *K. somaliensis* is illustrated in the same magazine in 1902 (5).

The leaves of *K. marmorata* shown on page 13 are held erect against the stem, each pair very much overlapping the pair directly above. The length is from 10 to 15 cm and the width is from 6 to 8 cm. The rich maroon-red to red-brown mottling of the leaves, chiefly on the under surface, contributes greatly to the ornamental value of this species. The blotches are very irregular in shape and in position, but occasionally one can distinguish a sort of pattern of three bands of blotches. One band of smaller blotches runs around the margin, each blotch falling on the sinus of the marginal crenations. The other two, of larger blotches, are roughly concentric with the outer. The upper surfaces are only flecked, and that irregularly, except for the marginal sinuses, each of which is colored.

The white flowers with their long, slender corolla tubes are just as striking as are the leaves (see page 14). Usually in a simple, once branched cyme, they are held erect on pedicels 2 to 4 cm long. The calyx is composed of four, almost free, linear-lan-

ceolate segments about 15 to 18 mm long. The corolla tube is usually over 7.5 cm long, and some as long as 10 cm have been observed; it is about 8 mm across at the lower end and about 5 mm at the base of the lobes. The lower portion is greenish, and upper portion is white, sometimes blushed with red. The lobes are pure white margined occasionally with red, ovate, longly acuminate, about 2 cm long, and they stand at right angles to the tube.

Unless staked, the older stems are likely to become trailing, due to the weight of the leaves, which sometimes number 12 to 15 pairs. The plant is a true perennial, and in established plants new stems will always be found near or at the crown. The flowering season seems to be from late November to January. How well it will flower as a house plant is a question, but it is always attractive as a foliage plant.

*Kalanchoe orgyalis* Baker (*K. antanosiana* Drake del Castillo) (see page 15) is a native of southwestern Madagascar, where it grows as a sparsely branched shrub 4 to 5 feet high. It is closely related to *K. bracteata*, and less closely to *K. Hildebrandtii*. In its vegetative stage, it unquestionably is one of the prettiest of the group, and it shares with *K. beharensis* the distinction of being the most unique of the group. It is a plant that will always draw the attention of those unfamiliar with it. The species name, incidentally, means the length of the arms extended (about 6 feet).

The leaves are somewhat variable in appearance, depending upon their age. When young, they are completely covered with a sort of membrane made up of scale-like hairs similar to that of *K. bracteata*. This membrane



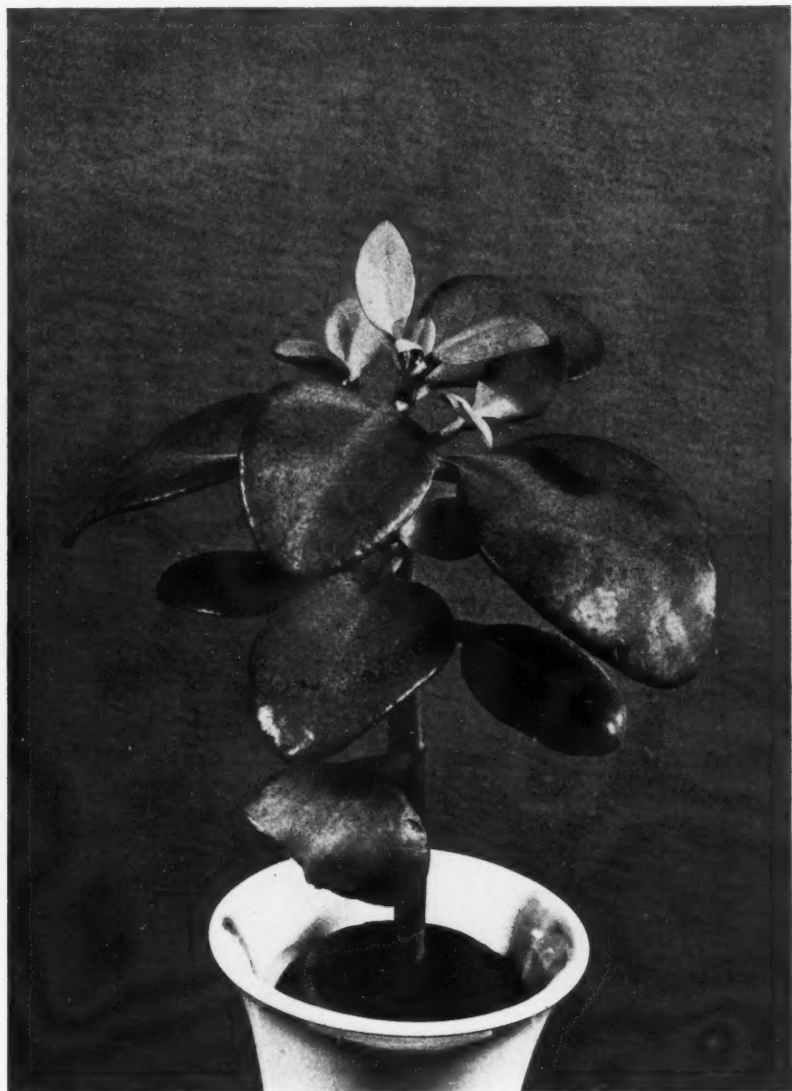
*Lilian A. Guernsey*

*Kalanchoe marmorata*

*Claude Hope**Flowers of Kalanchoe marmorata*

is light silvery bronze at first, but it soon changes to a pleasing rusty bronze. In the older leaves it becomes gray, only partially hiding the dull green of the leaves and later, on the oldest leaves, it falls away. The leaf

blade is from 8 to 15 cm long and from 4 to 8 cm wide. It is very thick, frequently as much as 1 cm, and very brittle. Those who grow this plant must be careful not to drop it; it would shatter like glass. The shape is



*Claude Hope*

*Kalanchoe orgyalis*

very well shown in the photograph.

The small flowers add nothing to the appearance of the plant and deserve only brief mention. They are carried in dense cymes on moderately short peduncles arranged in a panicle. The color is pale greenish yellow. The plants flower only rarely, so one will not see them often.

The growth is slow and the plants are more resistant to drying than are most kalanchoes. Plants from which water had been withheld for a month showed scarcely any evidence of withering. The species is easily propagated from leaf fragments; tiny pieces will produce plantlets even on a window sill!

*Kalanchoe rotundifolia* Haworth (see page 16) is one of the lesser forms and deserves only passing comment. It is a small plant, native to the Cape of Good Hope and to Socotre. Its one commendable feature is that it flowers regularly and usually several times a year, from early fall to late March. It may be said that this species, like *K. crenata*, is one for collectors primarily.

Its leaves are obovate, entire, sessile, small, 2 to 3 cm long, and dull gray green. The plant is slender and the stem is simple at first, but by late winter it may have two or three pairs of branches. It may vary in height from 20 to 40 cm, one-half to two-thirds of which may be in the slender peduncle.

The inflorescence is a once- to thrice-branched, few flowered cyme. The cinnabar-red flowers have a corolla tube about 8 mm long with small ovate lobes about 4 mm long, standing at right angles to the tube. In withering, the corolla twists tightly, a peculiarity noticeable in only one or two other species.

*Kalanchoe sexangularis?* N. E.



Lilian A. Guernsey

*Kalanchoe rotundifolia*

Brown furnishes a note of cool, clear, luxuriant green to a collection of kalanchoes. It is not a common foliage color in the group; most species are either glaucous, hairy, dull, or marked in some fashion. This one, though, has the glossy surface texture and color of a peperomia or of *Begonia semperflorens*. When grown in





*Lilian A. Guernsey*

*Kalanchoe sexangularis*

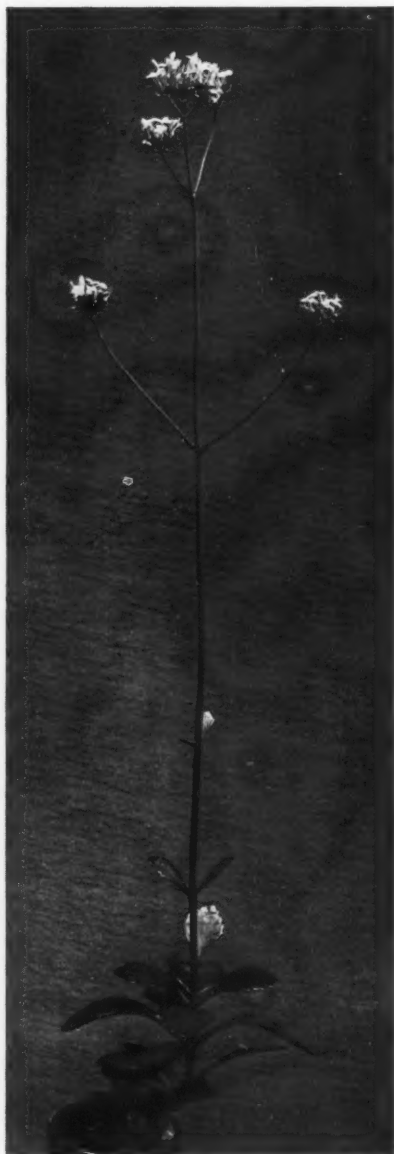
good light, the stems are colored a pleasing red which furnishes an accent tone.

Although not certain of the species identification for want of illustrations or comparative material, the author believes this to be *K. sexangularis*. If so, its native home, though not definitely known, is believed to be South Africa. It is apparently related to *K. longiflora*, a less attractive plant.

The leaf shape and margin characteristic may be easily seen in the illustration. The flowers are not particularly enhancing. They are borne on a long, slender-bracted peduncle, the cymes arranged as a panicle. In outward appearance, the flower seems to be mostly green corolla tube, the yellow expanded lobes being very small.

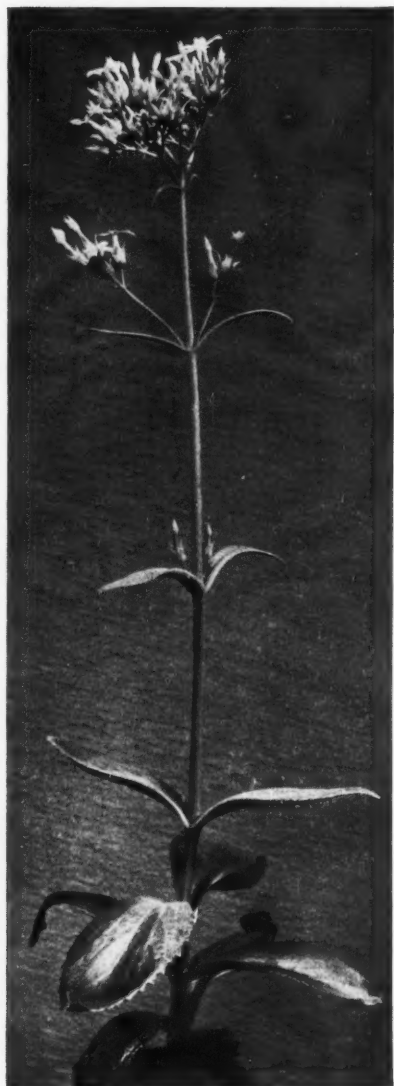
*Kalanchoe* sp., the identification of which has been impossible so far, is a small, slender, glabrous plant of only ordinary worth. It seems to be closely related to *K. rotundifolia*, but definitely superior to it. Its small leaves are a cool, pleasant green, 4 to 5 cm long, 3 cm wide, obovate, obtuse with two or three pairs of broad, rounded crenations on the margins of the upper half. Occasionally leaves are found that are obscurely three lobed. The petiole is slender and as much as 2 cm long. The leaves, to the number of 8 or 10 pairs, are crowded on the lower 15 cm of plant, and, as usual, the upper ones are smaller.

The illustration shows the character of the inflorescence and the habit of the plant, and it seems unnecessary to describe those features. The individual flowers are small, but rather effective *en masse*. The slender corolla tube is 6 to 8 mm long, and the lanceolate-acuminate segments are from 3



Claude Hope

*Kalanchoe* sp.



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*Kalanchoe spathulata*

to 4 mm long. The segments are rich yellow to orange yellow, sometimes slightly tinted or washed with red.

In withering, the corolla twists tightly, a feature of *K. rotundifolia*.

The flowers seem to have some value for cutting, where the plant can be grown in quantity. Like *K. rotundifolia* and unlike most other species, it flowers two or three times during the winter, flowering first in late September, and for the last time in April.

*K. spathulata* D. C. (see page 19) is another species for the collector. It is one Hamet (6) buried in the *K. laciniata* conglomerate, but as that group is ill defined and includes a great range of variations, it seems best to retain this name here. It is distributed throughout the tropics of the world and, accordingly, it has been known by various names.

In many respects it is similar to *K. crenata* and certainly is closely related to it. As an ornamental plant, it is even less satisfactory, except for the larger flowers. The basal leaves, dull gray green, are 10 to 15 cm long and 5 to 7 cm wide, elliptic-lanceolate, acutish, and narrowed gradually to the sessile, stem-clasping base. The margins are doubly serrate, conspicuously so in the upper half.

The flowers are in a moderately dense, twice- to thrice-branched cyme. The corolla tube is about 15 mm long, distinctly urceolate, and the bright yellow acute lobes are 6 to 8 mm long. The peduncle supporting the inflorescence is 40 to 60 cm long and has 2 to 4 pairs of lanceolate bracts.

*Kalanchoe synsepala* Baker (see page 22) is a native of Central Madagascar, where it is said to occur in several isolated localities. In each locality the growth is said to vary in some way from all other populations. Consequently, several species have

been described that probably belong here. (9)

The plant has a very short stem, even after several years of growth; the internodes are so short that the sessile leaf bases touch those of the adjacent pairs. The main vegetative stem apparently does not branch in the usual sense, but it does send out axillary flowering stems and axillary stolons.

Six leaves are produced each season: four normal ones at flowering time in December or January and two reduced ones later in the spring, the dry season of its native home. Presumably, in outdoor plantings, the leaves form a nearly flat rosette on the ground, but in pots they fold down against the pot, as shown in the illustration. They are pale, glossy green in ours, but *K. Gentyi* Hamet et Perr., said by Perrier de la Bathie (9) and later by Humbert (7) to belong here, has pubescent leaves. The leaves are sometimes as much as 30 to 40 cm long and 15 to 20 cm wide; they are broad ovate-lanceolate to lanceolate, acute, and narrowed gradually to the sessile, stem-clasping base. Their margins are coarsely and sharply dentate when young, but after full size is reached they are only sinuous-dentate. On some plants the margins of young leaves are decorated with a narrow red line which disappears with age.

The flowers are more peculiar and interesting than pretty. They are borne on slender, 50 cm peduncles arising from the axils of the leaves of the previous year's growth. Two or three pairs of these slender bractes are produced, but flowers are borne only on the lower one, or, if there are three, occasionally on the lower two. They are in dense cymes that measure only about 5 to 7 cm across.

The color varies somewhat from dingy white through flesh tones to light lavender. The size of the individual flower varies from 12 to 16 mm across. The degree of pubescence varies from none to dense.

The upper two of these branches, or sometimes, if there are six branches, the upper four are stolons, bearing at their tips young plants instead of flowers. The tips bend down as the young plants develop until they touch the ground; there the new plantlets root, and the stems rot away. Thus the plant does its best to insure its continuous existence.

The two natural methods of propagation, seeds and stolons, are about the only means available for this plant. Leaf cuttings apparently do not root.

*Kalanchoe thyrsiflora* Harvey is a striking and, on the whole, a unique species particularly in its thyrsoid inflorescence. The plant has been illustrated at least four different times: Woods and Evans (11), Curtis' Botanical Magazine (4), Marloth (8), and finally Pole-Evans (10).

As indicated by the above, this species is a native of South Africa. One would suppose from the number of illustrations that it is a striking plant, and so it is; however, one could scarcely call it beautiful. Under normal conditions, the somewhat four-angled stem stands erect and reaches a height of about 60 cm. It is clothed with regularly and closely spaced leaves up to the base of the inflorescence. These leaves gradually diminish in size towards the top but never are distinctly bract-like. They are sessile, practically connate, broad oblong-spatulate, with entire margins not greatly different from the leaves of *Cotyledon orbiculata*; the color is light blue green, considerably soft-



*Lilian A. Guernsey*

*Kalanchoe spathulata*



Claude Hope

*Kalanchoe synsepala*

ened by a thick white bloom. In full sun, the margins and outer halves of old leaves become red.

The inflorescence is a dense cylindrical panicle or thyrs composed of closely-spaced, many-flowered cymes. Each flower has a small fleshy calyx of almost separate segments and an inflated blue-green corolla tube about 14 mm long, and yellow ovate lobes about 7 mm long. The flowering season is usually late December or January.

It is not known definitely if the plant may be propagated by leaf cuttings, but certainly stem cuttings may be used. Seeds, of course, afford an easy means of increase.

*Kalanchoe tomentosa* Baker (see page 23), a native of Central Madagascar, deserves to be ranked among the best of the genus as an ornamental pot plant. Succulent plant dealers in California have been selling this plant under the name of *K. pilosa*, a name that belongs to an entirely dif-





*Lilian A. Guernsey*

*Kalanchoe tomentosa*

ferent species.

*K. tomentosa* is one of the hairy species of the group which includes *K. beharensis*, but it bears no resemblance to the latter except in color.

The small, leafy plant seldom exceeds 1 m in height, including the inflorescence. The stem is moderately stout and rather freely branched. It is densely covered, as are all parts of the plant, with silvery-white, velvet-like hairs that are three branched shortly above the simple base. The leaves are alternate, a feature not possessed by any other species. They are oblanceolate, acutish and narrowed gradually to the sessile base. The margin is entire below the middle and above that point serrate. The serrations are marked with dark brown in lively and pleasing contrast to the silvery gray of the rest of the plant. The flowers, borne on a long, branched peduncle, add little to the attractiveness of the plant.

It is one of the easiest species to propagate. Like *K. orgyalis*, the leaves are brittle and tiny fragments root and produce new growths. Stem cuttings root readily; frequently aerial roots are produced. It is not dependable for flowers, hence seed is not readily obtained.

*Kalanchoe velutina* Welwitsch (see page 25) seems to be rather widespread in tropical Africa. It has been described under several names, according to Hamet, and some of these, possibly, represent varieties. It is closely related to *K. crenata*, but it is a more valuable plant, especially in its flowers. Unfortunately, the illustration does not do it justice. It would be difficult to portray at best because most of its charm is in the color of the flowers.

In leaf and general plant habit, it does not greatly differ from *K. cre-*

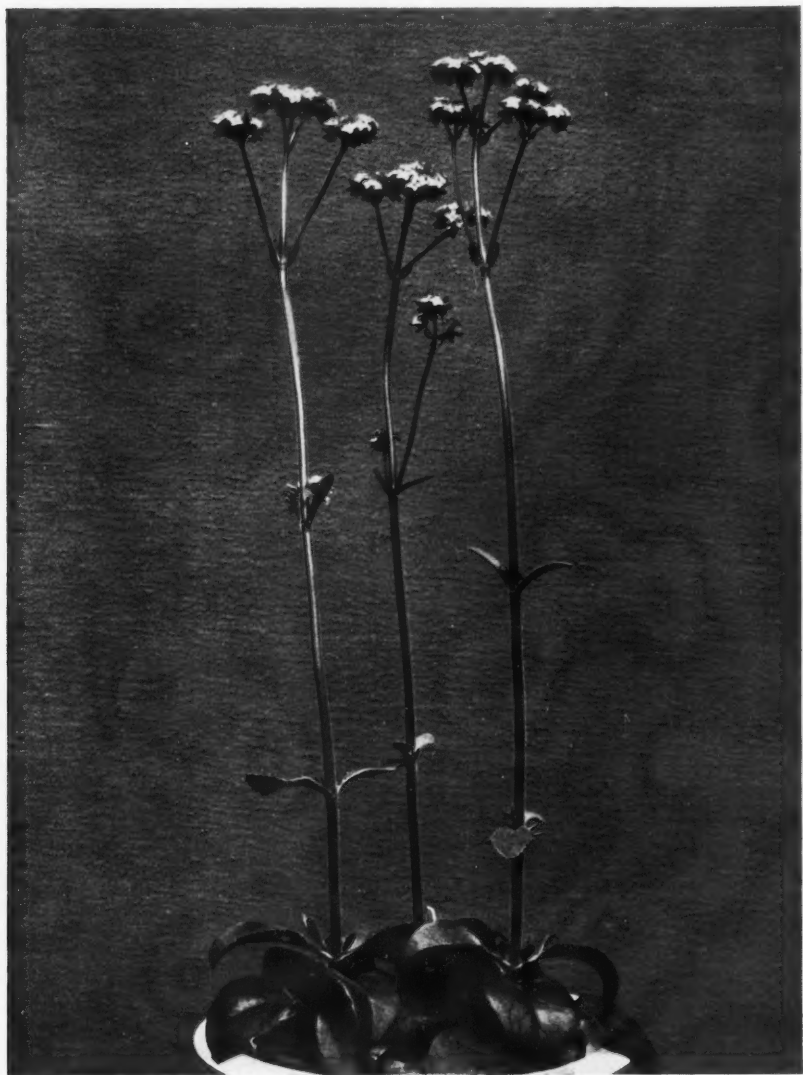
*nata*. Compared with the latter, the leaves are thicker, and only simply crenate, and are sparsely covered with simple white hairs. The inflorescence is of the same type of scorpioid-like racemes arranged in a panicle.

The flower characters are similar except for color and size. In that respect, *K. velutina* is more like *K. flammea*. The open flower is a good 2 cm across. The corolla segments are broad-ovate, overlapping each other a little at the base, and at the apex obtuse except for a tiny abrupt mucron or tip. The color at first is rich yellow washed with crimson around the margins of the corolla lobes. As the flower ages, the amount of red increases. As a result, one finds in one inflorescence both orange-scarlet and rich red flowers. The inflorescence is reasonably compact for about the first three weeks. After that it begins to appear a little shabby. Sometimes, however, they keep in good shape for a week or two longer. It should enjoy a good demand as a cut flower novelty. The stems are long enough (up to 75 cm) for the most exacting. Few flowers have better keeping qualities.

It is easily propagated by seed, and leaf or stem cuttings. It is practically dormant during spring and early summer, and the flowers ordinarily appear in late December or January.

*Kalanchoe Welwitschii* Britten (see page 26) is another species included with *K. laciniata* by Hamet (6), but for the present it seems best to consider it separately. Although it is obviously close to *K. spathulata*, is easily distinguished, and, on the whole, is a more ornamental plant. In a collection of kalanchoes, it adds variety by furnishing another foliage color.

The plant is entirely glabrous in all



*Claude Hope*

*Kalanchoe velutina*

its parts. The leaves are glossy, and in plants exposed to the sun a beautiful purplish-bronze color partially masks the green. They are broad lanceolate, acutish, with short petioles, and with coarse, shallow, marginal serrations.

The flowers are rich, coppery yellow, but rather small, so they are not particularly striking. They are scarcely more than 12 mm across the expanded portion of the corolla.

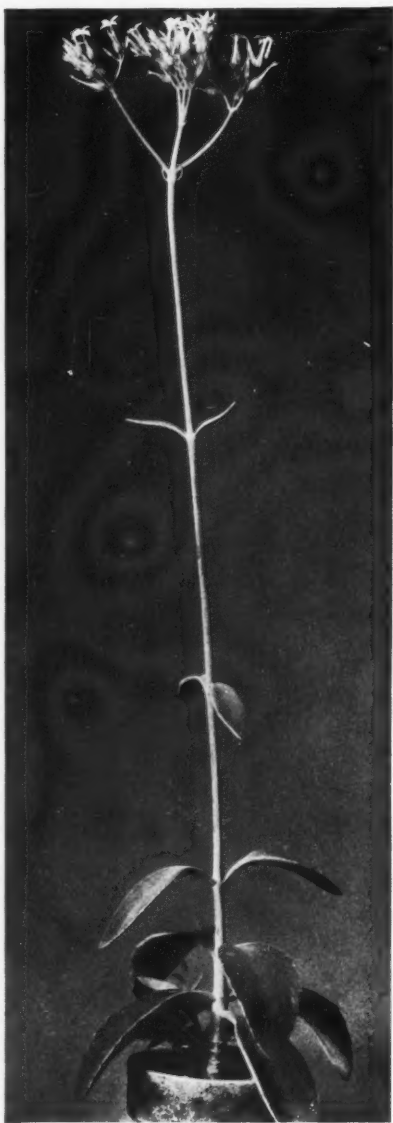
In most other respects as an ornamental, *K. Welwitschii* is similar to *K. spathulata*.

In addition to those mentioned here, at least one hybrid, *K. kewensis* Thiselton-Dyer (*K. flammæa* x *K. teretifolia* Defflers), is available, but as the author has seen only vegetative specimens of this, it will be passed by.

This survey of kalanchoes covers only a fraction of the one hundred or more species of the genus, but it gives an indication of the variety of forms to be found here. Perhaps it is enough to stimulate the interest of those who are looking for something different to play with during the winter.

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Claude Hope

*Kalanchoe Welwitschii*

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## A Gardener's Holiday in New Mexico

ESTELLE L. SHARP

### FLOWERS OF THE MOUNTAINS

AFTER collecting the flowers of the mesas and the foothills we were determined to catch a glimpse, at least, of the flora of the higher mountains—the Canadian Zone—before returning East. The camp at White Creek (elevation about 8,500 ft.) was twenty-eight miles by trail (much less as the crow flies) from the main ranch in the foothills. This meant the best of a day in the saddle and no collecting on the way was to be allowed, or we would never get there! At any rate the flower press was to be carried by the pack horse, and we could not undo all that diamond hitch every time we saw some plant we wanted. Before starting we were well warned that probably we would be extremely tired, if not exhausted, upon reaching our destination, and that camp having been closed all winter would probably have pack rats all over the place. We would have to be our own cooks and bottle washers. There would be beds to be made, and water to be carried. It could not be all just "flowers" this time. All the cold water possible was thrown over the trip but undaunted we started off.

Our first halt was atop Seventy-Four mountain, so named from the number of the ranch which used it for grazing, and also, because, as it happened, 7,400 feet was the altitude as well. The cattle that used this mountain for grazing must have lived upon a lean diet, indeed, for it was just about the driest, most desiccated spot imaginable. Facing south under that cloudless sky, it received the full

strength of the burning sun, as well as a continuous drying wind. We learned, by the return trip, that it was the better part of wisdom to save our picnic oranges until we reached Seventy-Four! Nothing in the world ever tasted better than a juicy orange eaten while riding across that dry place.

Looking north, we could see the mountains of Arizona, stretching on, range after range. It was interesting to observe the difference in vegetation between the north and the south slopes of these mountains. On the shaded sides, tall dark spruces and firs grew luxuriantly, while the sunny slopes, at the lower levels, had only a spotty type of vegetation—scrub oak, low juniper, manzanita (*Arctostaphylos*) mountain mahogany (*Cercocarpus*), etc.; and at higher levels the yellow pine predominated. Always it was the pine to the south and the firs and spruces to the north. They never mixed.

Here on this xerophytic Seventy-Four mountain we found a yellow honeysuckle (*Lonicera arizonica*) growing in the shade of a scrubby oak. A tiny low woody vine with stiff stems and shredded bark. The yellow gaillardia and the paint brush (*Castilleja*) were still to be seen here and there but were stunted and not nearly so handsome as those found on the mesas. Yucca, bear grass (*Xerophyllum*) and agave dotted the landscape.

From here we rode through tall pines where the undergrowth was scarce, even the carpet of needles was scanty. Further along there were great stands of blue lupine and yel-





*Alligator Juniper in creek bottom*  
(*Juniperus pachyphloea* Torr.)

[See page 38]

low senecios. This was a good place to make time and we let the horses canter. Up and down Dead Man's Cañon, up and down Langstroth Cañon, crossing streams back and forth, so much of the ride had to be slow moving that it was rather fun to feel yourself really travelling on these level places through the pines.

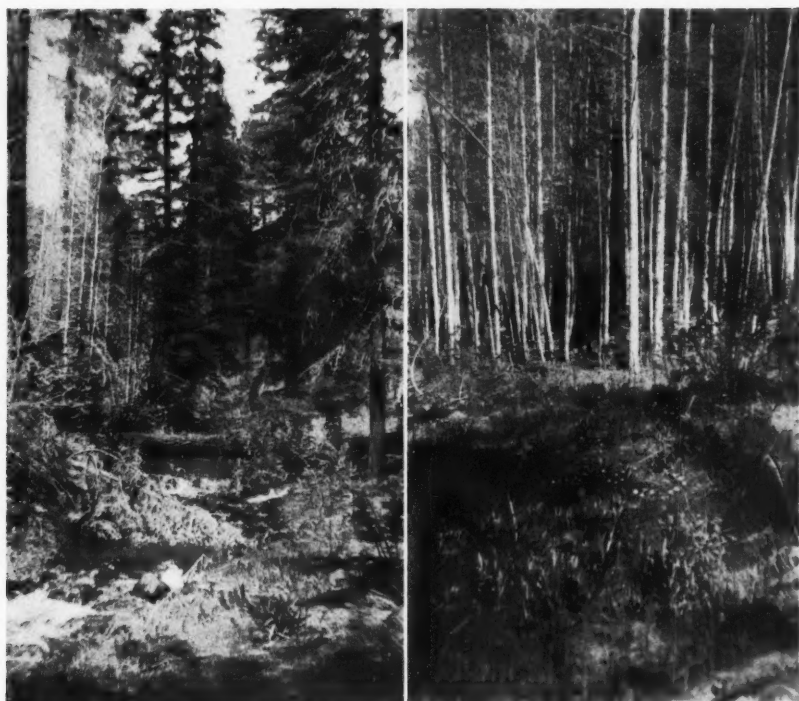
Stopping for lunch near some old Indian caves along the Mogollon Creek, I noticed, to my surprise, two old friends from home—the stately mullein and the lowly lamb's quarters. How under heaven did they find their way to this wild spot? The answer was easy to see after a moment's consideration for there was a corral here where cowboys, trappers and fishermen sometimes kept their horses, and these ubiquitous weeds must have come from the horses' feed.

Here, not only these weeds, but the entire vegetation seemed more like that at home—white and purple violets, yellow corydalis, heuchera and wild geranium grew under alders and willows along the stream. We were leaving the Transition Zone and touching upon the Canadian.

The high light of the afternoon's ride was the discovery of a large flowered white clematis on Trail Cañon Hill. We had been walking up several of the hills (all day we were going up or down) to stretch our legs and to give the horses a "break," but this hill was the highest we had climbed (we were at an altitude of about 9,500 ft.) and my guide-brother suggested that this time we had better ride up for the horses were more used to the altitude than we were! But who could sit on a horse's back and ride past an unknown clematis in flower? I had to get off to have a look at it. But

my otherwise long-suffering horse, Hindu, was not interested, and we blocked the trail for Lil, the pack-horse, who ran down the side of the hill and nearly lost her pack on the low hanging branches. Lil, a young mare, had an adventurous spirit but never had quite enough nerve to carry out her intentions. She would start to take short cuts, lose her courage, and return in line rather confusing the other horses. Now here was I upsetting Lil just when she had been behaving properly for once; so all I could do in my haste to mend matters, was to clutch the precious vine and jam it into my saddle bag. Never shall I forget the expression on the face of my botanist companion as that clematis-viorna-atragene-what-have-you went into the saddle bag. Though I noticed at a later date she did not hesitate to tuck into her shirt several specimens of pyrolas, chimaphilas, and vaccinium. Have you ever ridden for several hours with various members of the Heath family down your back?

At the end of the day the clematis was revived in the stream and really made a fair herbarium specimen, in spite of its bad treatment, but botanizing on a pack trip is not like botanizing on foot or from a Ford car. The horse will get you places where it would be impractical to walk and totally impossible to drive, but you must remember at all times, that the horse and you are not always of the same mind! That's the fun of it! The next day when we did our collecting on foot, we were gone such a long time that my brother told us upon our return he was just about to take the horses out to meet us. When I assured him in all seriousness that the horses could not pos-



*Quaking aspen and wild candytuft (right)*  
*White Creek (left)*

sibly have gone where we had, you should have heard him laugh!

At last we reached White Creek—a racing mountain stream, which at no season of the year would ever dry up. What a different world from that which we had left that morning, only a score or so of miles away, but over 3,000 feet lower. Here still on the southern sunny slope were the western yellow pines, but on the left hand of the stream—the shaded side—only firs and spruces grew—the Canadian Zone in New Mexico!

The first flower we noted with delight was the delicate blue *Iris mis-*

*souriensis*. We had been told it grew in quantity but were fearful it might be too early, for this flower is generally at its height in June. Now, in mid-May, we found quite a number of them in bloom along the stream and from the many buds we could visualize how beautiful they must be in great quantity later on. The quaking aspens were coming into leaf, amelanchiers were in bloom and a white, sometimes pinkish penny-cress (*Thlaspi*) which I was tempted to call wild candytuft, made a ground cover beneath.

Occasionally as we crossed the stream back and forth, we spied old



*Douglas fir (right) and early spring growth along White Creek*

drifts of snow hidden away from the sun in pockets under the thick stands of fir trees. Many large trees were down across the narrow trail, as a result of the unusually heavy snows that winter, and no one had cleared the trail as yet. A flock of wild turkey ran to cover as we came around a bend and once our horses nearly stepped on two "fool quail" sitting comfortably right in the path. These birds are larger than the California quail with which we had become familiar around the ranch, and are so tame that you almost have to shoo them away like chickens if you want to see them move.

We were thrilled to find a merten-

sia—just one in bloom, nor did we find another, or even see their leaves. This must have been a very early adventurer of its clan for surely, we thought, where one mertenisia grew there must be many more, remembering well the sheets of blue which *Mertensia virginica* makes along the Brandywine and the Perkiomen creeks in eastern Pennsylvania. This was probably *Mertensia cynoglossoides*.

Disporum and false Solomon's seal (*Smilacina*), calypso (*Cythera bulbosa*) and cohosh (*Actea*) we found too as early individuals. Only two or three were ever found at a time together. But the violets, both



*Pine on south, Douglas fir on left of slopes (left);  
Douglas fir stand (right)*

purple and white, the valerians, the senecios, and everywhere still the lupines, grew in masses in every opening along the stream where the firs had fallen allowing enough light for the undergrowth to develop.

What a satisfaction it was to see the Colorado Spruce in its own home rather than set in the middle of a suburban lot, a sight with which we are all too familiar! I could not help but think of various discussions I had heard among landscape architects and horticulturists concerning the correct planting of the Blue Spruce (*Picea pungens*). Some felt it was too hackneyed or too exotic to use at all. Others maintained

that when put in the right place it made a beautiful planting. Here along a rushing mountain stream surrounded by firs and other spruces there was no doubt of its beauty. It is generally found at somewhat lower altitudes than the Englemann spruce but the range is similar.

The boughs of the Balsam Fir—here *Abies concolor*—made a fragrant bed for us that night within a few feet of the ever-racing stream. Before dropping off to sleep we were sure we heard children's voices and laughter, then listening again the sounds turned into ringing bells! Next morning we were assured that everyone who came to camp heard



strange noises the first night only to learn later it was the "voice" of the stream which had mystified them.

It was a comfort to learn next morning also that our horses had not bolted for home when turned loose that night after being fed, as I had feared that they would. It was necessary to rise early to catch the sound of their bells before the wind came up, for, when the wind blows in those tall evergreens it is difficult to catch the distant tinkle of a horse's bell.

#### FLOWERS OF THE MESA

We would see the spring flowers at their best, they told us, if we came sometime between the seventh and the twenty-first of May; for at that time we would find the last of the mesa flowers, be on time for the flora of the foothills, and catch the earliest blooms in the mountains. In New Mexico one finds within a few miles very different types of plant life. The desert, or Lower Sonoran Zone (so named from a province in Mexico) is characterized by the most xerophytic conditions, supporting only such drought resistant plants as mesquite (*Prosopis*) creosote bush (*Covillea*), and various species of cacti and yucca. Rising from these dry plains, one finds a shrubby growth of oaks, mountain mahogany (*Cercocarpus*), piñon pines and juniper—the Upper Sonoran Zone.

As one ascends the foothills towards the mountains, the big trees come into the picture, consisting almost entirely of the western Yellow Pinus (*P. brachyptera*). Associated with these are wild cherries, alders and mountain maples. This, in scientific parlance, is described as the Transition Zone. A little higher appears the soft green of the Douglas

fir (*Pseudotsuga mucronata*). This tree on the edge of the Transition Zone, does not attain a great height. It is in the higher altitudes that it reaches its greatest glory among the firs and true spruces.

The Canadian Zone is almost entirely a coniferous forest with occasional stands of the white barked aspen, a tree which grows up quickly in burned areas. At timber line and above are isolated areas containing the type of low growing plants found in the Hudsonian and Arctic-Alpine Zones of the North. Such localities are few in southern New Mexico and, generally speaking, the higher one goes, the taller the trees become, due to the increase in the amount of moisture at higher altitudes.

In early May as we drove across the mesa (a flat tableland somewhat higher than the surrounding country) on our way to the ranch in the foot hills of the Mogollon mountains, we stopped constantly to see the strange flowers all along the roadside. We had left home just as the tulips and lilacs were budding in our gardens. We were missing the dogwood and spring beauties of our rich woods. But this very faint taste of a strange flora filled us with such enthusiasm we completely forgot the pang we had felt at the last moment when leaving our gardens back East. This was a whole new world! Here were unfamiliar yellows, lavenders, pinks, whites, all colors. What were all these flowers? One looked like a verbenas, another must be some kind of an evening primrose, a third was similar to our milkweed. For others we were able to tell only their families; the rose, the mallow, the mustard, the pea, and the ever-numerous composite families were well represented. There were, besides, many





*Mogollon Falls*

more, with strange characteristics, which took working over in Wooten and Standley's *Flora of New Mexico*, before they could be tracked down. Such plants as *Berlandiera*, *Townsendia*, and *Hymenopappus* were complete novelties to our eastern eyes.

In our eagerness to reach as many of the flowers as possible, we scrambled under barbed wire fences, ruining our stockings, and covering our traveling clothes with dust (for spring is the dry season in the southwest). The variety of flowers just along the roadside was amazing and we kept stopping so often on our way that by the time we reached the ranch, sixty miles from the sta-

tion, the large piece of ice in the rear of the car had diminished in size considerably. Passengers and provisions travel together when the long trip to town is made once or twice a week.

To a gardener, there is nothing quite like the thrill of finding, for the first time in its natural home, a plant which one has worked over in the garden. Never again shall I fuss over blue flax not being able to stand out heat and drought of July! Here it was growing in the brilliant burning sun on the mesa in soil that was dry as dust. This is *Linum Lewisii*, not *perenne*, which comes from Europe, but hardly dis-

tinguishable from it. The yellow flax (*Cathartolimum vestitum*) grew in close proximity bearing up equally well under dry conditions.

The sego lily (*Calochortus Nuttallii*), which I had grown unsuccessfully in cold frames in the East would now be given a different treatment since I had seen them flourishing on the mesa. The bulb of the flowering plant is very deep down, but the tiny new bulb is formed nearer the surface of the ground. Even our special botanical trowels were not sharp enough to dig down through the stones for that deep bulb without breaking the stem. Trying again and again, we were finally content to keep only the smaller, new bulbs, hoping that they would flower in a year or two.

It was the first time I had seen the red and yellow gaillardia of our gardens, growing wild. There were several varieties of them, some all yellow, some with very little red, as well as the brighter ones. Somehow out here where they belonged one did not object to their garish color scheme. They were attractive growing amongst the gray green grasses under that brilliant sky.

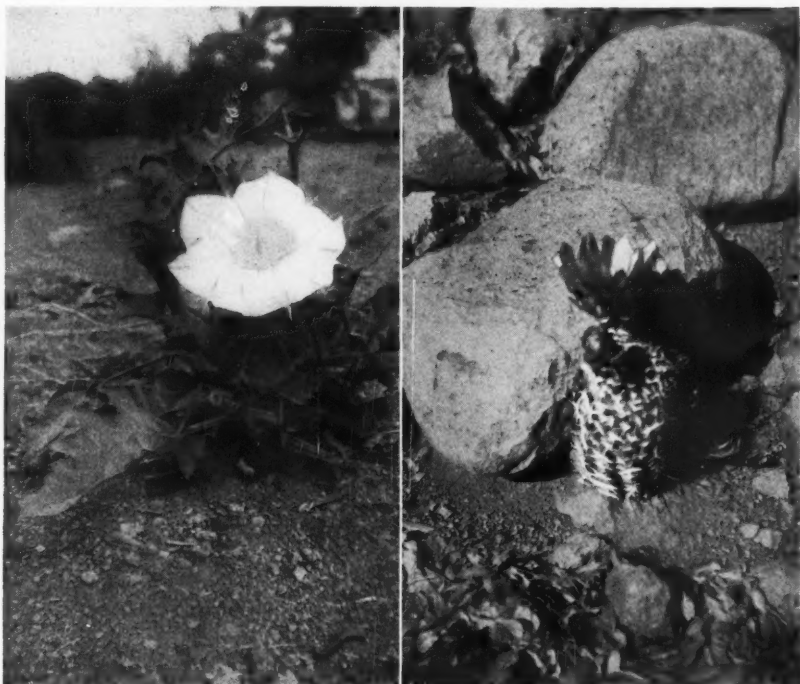
The poppy family was well represented by eschscholtzia, the yellow California poppy, and a gorgeous white argemone (*A. platyceras*), very prickly to the touch but just as handsome as an Oriental poppy. It was a beautiful thing growing right in the driest dustiest spots. Having grown, and tired of the pale yellow *Argemone hybrida grandiflora*, which seeds itself from year to year in the garden, I now feel urged to try this splendid white relation, hoping, if given a poor enough soil, it will prove to be as showy in the garden as it is at home.

Just as handsome and rather more abundant were the evening primroses (*Oenothera*). These were low growing species but due to their large flowers were very showy. We found yellow and pure white specimens. The yellow petals deepen to orange as they fade, making a pleasing contrast, and frequently fooling us into thinking we had found another variety. Out there they call them Mexican roses.

There was a western wallflower (*Cheiranthus asper*), a blue phacelia, dwarf yellow lupine, bluish purple brodiaea, erigeron and androsace, names familiar to all gardeners. We even found a delphinium (*D. camporum*), a pale blue flower, about eighteen inches high, with a very thick root. Would that some of our temperamental hybrids might be bred with this drought resistant species! I brought roots home in newspapers and they started growth in the fall.

*Baileya multiradiata*, a yellow composite, seemed as if it should have garden value. This is a very neat, upright, calendula type of thing, but much more interesting due to its wooly gray rather coarsely cut foliage. If one could keep it on the dry side all spring it would be a lifesaver for dry July gardens, and splendid for cutting, as it has a long season of bloom, sometimes continuing until frost. Unfortunately the bits of root I was able to collect did not take kindly to their new home. It is just one of those things to try again for I believe it to be worth while.

Bitterweed (*Hymenoxis*), very similar to tagetes, would make an attractive dry garden edging plant. It grew as a ground cover all over the pasture and its bright yellow flowers



*Angel's Trumpet (left) and Hedgehog Cactus (right)*

made a lovely color combination with the common verbena with which it is often found growing.

The day we left for home I found a datura—Angel's Trumpet. It was a beautiful thing, pure white, a huge flower on a plant a foot high, growing off by itself in the middle of the pasture. For a minute it brought to mind another Angel's Trumpet I had seen several years before. It, too, grew as a solitary specimen, but cultivated in the center of a tiny fragrant garden surrounded by heliotrope and rose geranium, at the old home of that famous English gardener, Miss Gertrude Jekyll. What a contrast is backgrounds, moist and

green England and this brilliant dry atmosphere of our southwest!

The only two cacti we found blooming at this season were the Pincushion, one of the mamillarias, and the Hedgehog (*Echinocereus*), both brilliant splashes of color on the dry hillsides but much too full of thorns for collecting by any other than cactus enthusiasts!

A shrub with small white flowers growing on the washed banks of the arroyos attracted our attention. From the arrangement of its floral parts we knew it to be a member of the rose family. That much was easy! To my unbotanical mind the fruit appeared somewhat similar to that of

clematis, which is so often nearly as decorative as its flower. Both flowers and fruit were present together on this shrub which the botanist tracked down to *Fallugia paradoxa*, otherwise known as Apache plume. It was most attractive, perhaps a bit scaggily for gardens, but would be able to take any kind of a beating on a dry bank, according to the habitat in which we found it.

My friends had warned me against bringing plants home. They had tried so many of these lovely western things and none of them would grow for them. So I curbed my desires as much as possible and restricted my collecting to dried specimens to study at leisure in the winter months, but there were a few things I just had to bring home "in the flesh" and from among these the delphinium and sego lilies have sprouted, the iris seed germinated not only, promptly, but well, and the erigeron and violets actually bloomed!

#### FLOWERS OF THE CANON AND CREEK BOTTOM

Our first horseback ride took us to see the lupines in the creek bottom. This time the flower press accompanied us. Riding through scraggy juniper, live oak, and mesquite with a flower press on your back makes rather slow going. When you turn to see some new flower it is easy enough to lose a hat on a low hanging branch, but if the strap of the press gets caught you are likely to get hung! Then, too, collecting specimens means frequent dismountings and it isn't every western horse that understands the meaning of that large portfolio he sees out of the corner of his eye. Saddle bags and packs he has learned to make the best of; but a flower press is a new

fangle and you have to be careful in mounting not to scare your horse with it. And never forget that a western horse has much more sense than an eastern rider in the west! With these words of advice we started off to see the lupine.

After descending two steep hills we reached the Mogollon Creek where our first find was a yellow *Mimulus* (*M. parvulus*) growing right in the water, in some cases. Some individuals were very short, two or three inches, others as tall as one foot, but they all seemed to belong to the same species.

This creek, like most streams in the southwest, has periods of very high water as a result of storms or melting snows in the mountains. After a thunder shower in the summer time there will be a raging flood for just a few hours and it is impossible to ford the stream. One just sits and waits for it to go down. In early spring as the snows melt, the creek is high for a longer period, and any who have to cross the stream, can do so only on horseback. When the water is seen to be rising, a car is rushed to the further side and kept there so that one is not cut off from the town (and provisions) sixty miles distant.

In the dry season the Mogollon sometimes descends to a mere trickle. The result is a constant changing of the stream bed. The tiny *mimulus* we found on the dry banks of the stream had probably started life with its roots in the moisture, then the stream receding left it high and dry, and, although it persisted long enough to fulfill its life cycle, its stature was dwarfed in comparison with its companions in the moist location.

In the creek bottom were many

Alligator junipers (*Juniperus pachyphloae*). These, sometimes growing into fine old specimens, have been known to live a thousand years. They never attain a very great height—about ten metres—but develop a thick trunk. The bark is checkered, giving the tree its common name. The wood is used for firewood and smells deliciously as it burns.

Another juniper is the one-seeded variety *J. monosperma*. The leaves are a more yellowish green than those of the alligator and the tree is much branched and rather low growing. With these two junipers grow the piñon pine and live oaks.

The tallest trees characteristic of the stream beds are the cottonwood and the sycamore. The latter, *Platanus Wrightii*, is similar to the eastern one and somehow always surprised me when finding it in the southwest. New Mexico, however, is full of surprises. One is apt to think of it offhand as a land of cactus and yuccas, drought-resistant and sun-loving species, but truly there is an amazing variety of vegetation here, greater than in almost any other state.

On the top of a cliff where the brilliant color of a pin cushion cactus catches your eye, grow yucca, bear grass and agave. At its foot away from the sun, and therefore cool and moist, are growing masses of yellow columbine (*Aquilegia chrysantha*) whose growth could best be described as positively "lush!" Our gardens filled with plants from all over the world as they are, could hold no greater contrast.

As we rode up along the stream towards the Falls, we found everywhere the tall blue lupines growing

in stony soil, often mingled with yellow senecios under the pines. Occasionally, a pure white one stood out against the blue. At higher altitudes we saw lupines of various colors. The flowers at the tip of the raceme were white, those lower down, blue, then yellow, and the lowest ones a real purplish brown. A dwarf yellow lupine, only a few inches high, grew among the stones on the driest slopes.

Another member of the lupine family we found was the yellow *Thermopsis pinetorum*, very much like *Thermopsis caroliniana* of the Appalachians which is in the trade. This grows, as its specific name suggests, in open pine woods in the Transition Zone.

One of the loveliest sights of all was the pink locust in flower (*Robinia Rusbyi*). This was a small tree, about twenty feet in height, covered with crowded racemes of large pink flowers. Nearby grew the shrubby gray foliage Rabbit Brush (*Chrysothamnus*), not at this time in flower, which is so prevalent in this region.

As we neared the Falls the rocky walls closed in upon us and there was no room for a trail. Our horses splashed along through the stream, picking out the shallow places and watchful of slippery rocks. Finally we dismounted and left them tied to some trees on a stony ledge while we went on foot a short distance to the falls. Here it was that the world seemed suddenly changed! On the shaded side of the cliff grew tiny ferns, various species of the wooly-leaved Cheilanthes, and Pellaea, the cliff brake, violets and columbine, iris and thalictrum. A group of lovely pink pentstemon was showy enough to warrant its scientific name of *spectabilis*.

High above us near the top of the cañon, the *Fendlera*, a relative of our mockorange (*Philadelphus*) threw its sprays of white flowers. This is a handsome shrub, about six feet high, growing usually in the most precipitous places. Its flowers, on closer inspection, are often tinged with pink. August Fendler, for whom the shrub was named, was one of the earliest botanists to collect in New Mexico, having visited there in 1846-47. Beside this genus named in his honor there are also many species. We find *Rosa Fendleri*, *Senecio Fendleri*, *Cheilanthes Fendleri*, etc. Indeed, after a botanizing trip to New Mexico Fendler seems like an old friend, along with Bigelow, Wright, Metcalfe, Cockerell and Greene, who also collected here.

Not far from where we stood looking up to admire the *Fendlera* we saw our first (and only) rattlesnake, but he was sluggish since it was so early in the season and he crawled

away under a rock before we had time to have a good look at him. We had been warned when climbing about these cliffs never to put our hands to the ground without first looking around in case there might be a snake about. Only those who are careless are likely to be harmed. Nevertheless it gave us a moment of anxiety when we realized that one of our companions had but a few moments before passed this very spot in bare feet. Not wearing waterproof boots that day she had preferred wading the stream in bare feet rather than riding home in wet shoes, and, tiring of our "botanizing" along the way had gone on ahead of us for a dip in the pool at the foot of the falls. However, we were not frightened for long. The old snake was half dormant anyway; and who could resist a quick bath in the icy water of the mountain stream before starting back on the long ride to the ranch.



# Raising Hardy Cyclamen from Seed

CARL AND LOUISE STARKER

SURELY there can be no lovelier flower in the autumn than the dearly beloved cyclamen. The shining purity of the white, the gay bravery of the perky pink blossoms brings a catch to the heart of the beholder. There they stand so boldly on their stiff, sturdy stems, their petals flattened backward like the ears of angry cats—they seem even a little temperish in their defiance of the autumn and winter weather.

After the butterfly flight of the exquisite blossoms come the leaves, which are no less lovely in their own way. Ample and substantial, they are usually mottled with lighter splotchings and shadings on a background of deep, smooth-textured green. Often they are shaded with purple beneath. They remain sturdy and constant throughout the winter.

Here, indeed, is a plant fashioned to show the glory of God and the wonder of Nature. The flowers do not appear all at once, but in succession over quite a period of time. As each flower fades, its stem curls modestly down upon itself, tucked out of sight in a most accommodating fashion, so that the blossoms yet to come may be fully appreciated. And that is very obliging of them, but here is the wonder. When the next year comes around, and the seed from the flower has ripened, the curled-up stem, which has made of itself a perfect spring, pops up, and flings its seed far and wide over the garden. So it is, that unless you watch your cyclamen with the eyes of a lynx, you will never be able to catch your ripe seed before it has

fared forth on its journey into the world.

And if you are to have new plants, you must either buy those which somebody else has raised from seed, or grow your own seedlings, for the cyclamen is a plant which will tolerate no dividing. No offsets or sprouts for it. Its wide, flat corms, which somewhat resemble the humble hamburger cake in shape and texture, grow ever more ample as the years go by, sometimes attaining a width of six or seven inches and a weight of two pounds, but it remains ever one plant, individual and indivisible.

There are no particular difficulties to be encountered in raising cyclamen plants from seed; the chief requisite is patience. Young gardeners who have no time to waste may find it hard to wait for the plants to come to blooming size, but older folk, to whom a year or two means very little, will make no difficulties over this. The biggest obstacle is the obtaining of fresh seed. If you are very spry, you may catch seed of your own old plants if you have them, but they often get the better of you, in spite of all your watchful care. Local seed is almost impossible to obtain, so that most of your seed must come from Europe, which means that it is not so very fresh by the time it reaches you.

When it comes, usually in late winter, lose no time in getting it into the ground. It can be sowed in flats or pots, depending upon the quantity of seed to be planted. We sow in flats in a mixture consisting

of one-third each of peat, sand and garden loam. The soil is well firmed and watered and the seed sown and covered with a layer of the same soil mixture in which it was planted. As cyclamen seed is quite large, be sure that it has an adequate covering of soil.

We cover the flat with a pane of glass and a paper to keep out the light and leave it in the greenhouse to germinate. If you have no greenhouse, you will probably have as good success with seed left in a covered frame or in a pot covered with glass and placed in a protected spot out of doors.

The seed will take its own sweet time about germinating, but it should be up by early summer, and may come sooner if your seed is fresh. It will germinate irregularly, as there is a great difference in the time of germination of the different species, and even of different individuals of the same kind.

When it does come, it will make one leaf, and a tiny corm about the size of an old fashioned black-headed pin. We usually leave the seed flats undisturbed in the greenhouse until the beginning of the second summer, when we put them into the cold frames and protect them with lath shades.

The cyclamen leaf gradually enlarges, and by the beginning of the second autumn after sowing, the corm will be about the size of the little finger nail, and two or three leaves more will have appeared to join the first one. If you are very fortunate, it may give you one or two flowers. The little plants may now be shifted to new quarters where they will have more room to develop, either into new flats or small pots. The soil mixture should be essen-

tially the same, with the addition of some mild fertilizer, such as bone meal.

The third year you can be pretty confident of a few flowers, although the plants are not large enough yet to bloom very freely. By now they should have six or eight leaves and the corms should be at least as large as the thumb nail. They can be put into larger pots or even planted out in the garden, if you can mark their abiding place surely, for they will go dormant in the spring, and it is so fatally easy to dig out the little corms unless they are well marked.

They should be set out into their permanent home in the garden at once and not moved about, as they dislike being disturbed, and will usually sulk for about a year after they have been reset. You will simply lose one season of bloom if you yield to the desire to "exercise" your plants. But if they are left in peace, in a partially shaded situation, they will increase in amplitude from year to year, as they do in our rhododendron bed, there to delight the eyes of all beholders through the shining hours of Indian summer and the dank dreary days of autumn.

There are incredible plants in England which are reported to have produced over a hundred flowers at once, which seems almost outside the realm of possibility, but the great-grandfather corm, which came to us many years ago, had certainly a hundred and fifty flowers during its blooming season this year.

Such fragile, fairy-like flowers should have a delicacy of constitution to match their beauty, but they are surprisingly hardy, and will stand a good deal of neglect, although they will come along better

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# A Natural Garden of the Great Cypress Swamp in Florida

JOSEPH L. FENNELL

THERE are, no doubt, other such interesting and beautiful spots in the world. There may be, perchance, even a few areas where nature has displayed still a greater lavishness in her capricious fashioning of sylvan beauty. Even so, since there must be some relative limit to which the mind can comprehend, any excess that may lie beyond or above must as a consequence pass with but a superficial recognition. At least that was my whole-hearted conviction the morning that I first viewed from our boat the tangled recesses of Ibis Creek.<sup>1</sup>

Ibis Creek, or as it is better known, Ibis Slough, is one of several such small streams of the Great Cypress that in its lazy efforts to reach the Gulf of Mexico is persistently thwarted by rank encroachments of the swamp. In places the trees crowd closely along its banks allowing a channel of scarcely more than six or eight feet. Further along it may broaden to a leafy bog or even to a tiny lake perhaps encircled by the dark tangle of the forest. It is in reality of such a lake that I am about to relate, for indeed, I shall never forget the sheer sense of awe, or the complete captivation that seized me the moment we entered its hidden domain.

To the lover of aquatic plants a trip down Ibis Creek is like a trip through Eden. For at this time of the year—it was the month of May—there is much of interest. As our canoe nosed its way through the thick

tangles of pickerel-weeds (*Pontederia lanceolata*) overtopped by the myriads of bright blue spikes, I observed near the east shore a clump of large-growing and large-leaved arrow-heads (*Sagittaria sp.*). The white daisy-like flowers stood erect in proud beauty and the leaves broad and massive suggested those of the heliconia. This species I had never seen before so turning our craft to the left we shortly emerged from the pontederias into a strip of open water. Near the base of the sagittarias there huddled a dense colony of water-lettuce (*Pistia stratiotes*). They formed as they floated there like little gray-green cabbage plants a bright contrast in the coffee-colored water.

Our time was limited and since the channel ahead presented such an alluring vista we were spurred to move on. For the next hundred or so yards the stream tunneled under a dense canopy of cocoa-plum trees (*Chrysobalanus interior*) and at this point the channel was so obstructed by fallen timber as to be all but impassable. Far above all towered the giant cypress trees freshly clothed in the verdant foliage of spring. In this shaded water there grew another and a very different type of arrow-head. Only the delicate inflorescences reached above the surface but upon looking closely we could distinguish growing on the very bed of the creek many green rosettes of leaves. It was quite unlike in habit or appearance any of the other sagittarias with which we were familiar. It has since been a source or regret that we did not col-

<sup>1</sup>This stream is known among hunters, etc., as Ibis Slough, due to the great flocks of these birds frequenting the vicinity.

lect and identify this interesting plant.

On a few of the smaller boughs overhead grew clumps of a rare Florida orchid (*Epidendrum umbellatum*). Although the flowers of this species are not showy, the thick, waxy foliage is of interest. Back in the shadiness of the swamp covering logs and tree-trunks were seen several species of ferns. Many of the buttressed cypress trees had their plumy garlands of foliage. Here also we found growing in pockets of decayed wood high up on the trunks the odd fern relative, *Psilotum nudum*.

Working over or under as the case required we were finally past the worst of the obstructions to navigation and viewed ahead a stretch of open water. But at the far end of the vista it truly appeared as if the creek had come to an end, for there blocking the channel from shore to shore stood a dense grove of pond-apple trees (*Annona glabra*). Their gnarled, twisted and stunted appearance stood out in weird contrast to the rankness of the other vegetation. This little grove was, in effect, a world apart.

All about the scantily leaved twigs and branches of the *Annona* trees there grew in great profusion several species of air-plants (*Tillandsia spp.*). Some were of large size and bore showy red inflorescences. Others were merely gray-green with drooping purple perianths. The most common species, however, and one that in its profusion literally filled the trees gave the appearance of hundreds of tufts of bronzy-red and purple-colored grass adorning the twigs. Over and through this spectrum of color filtered the morning sun which by this hour had topped the tallest trees to the east and shone down on the creek lighting the little grove into a rainbow of splendor.

So far we have dealt only with the outward appearances of this strange plant association. But once under the pond-apples there was even more of interest. The rough and gnarled branches formed ideal conditions for other epiphytical plants especially the orchids. On the limbs little more than head high above our boat we noted several species of epidendrum, including *E. umbellatum*, *E. nocturnum*, *E. anceps*, and *E. tampense*. But the true delight of this rather odd spot were the many large blossoms of one of Florida's most unusual plants, the queer leaping-frog orchid (*Polyrhiza Lindenii*). Having neither stems nor leaves the long-tailed, pearly-white flowers gave the appearance of springing directly from the bark of the annona trees. With close observation, however, one could see at the base of the delicate unflowered inflorescence a mass of green worm-like roots<sup>2</sup> spreading lengthwise along the bough. It was a rather strange sight and caused one to consider the range and diversity of the vegetable kingdom. The many white blossoms mirrored a fantastic picture in the black water that eddied lazily around the distorted bases of the trees.

Beyond the little grove the stream diffused into a morass of giant reeds (*Phragmites phragmites*). Scattered through this tangle were numerous plants of arrow-head, pickrel-weed, cat-tail, etc., and among the most conspicuous of all were the large stilted leaves of the yellow spatterdock (*Nymphaea macrophylla*). Here also grew clumps of a giant and massive leaved fern (*Acrostichum aureum*) whose coarse fronds projected six to ten feet in the air. Spotted through this rampant wilderness were seen

<sup>2</sup>These root-like organs contain chlorophyll and substitute the function of both leaves and pseudobulbs.

several showy white flowers of the swamp-lily (*Crinum americanum*). But despite its interesting flora the region had also its terrors, for as our boat nosed its way through the cane-like grass numerous snakes splashed here and there in the water, disappearing into the submerged vegetation. Several of these showed the dark indistinct markings of the "cotton-mouth." Although not foreseen at the time it later appeared as if these dreaded reptiles were but the guardians of the paradise beyond. For indeed, a paradise it was, at least to the flower lover.

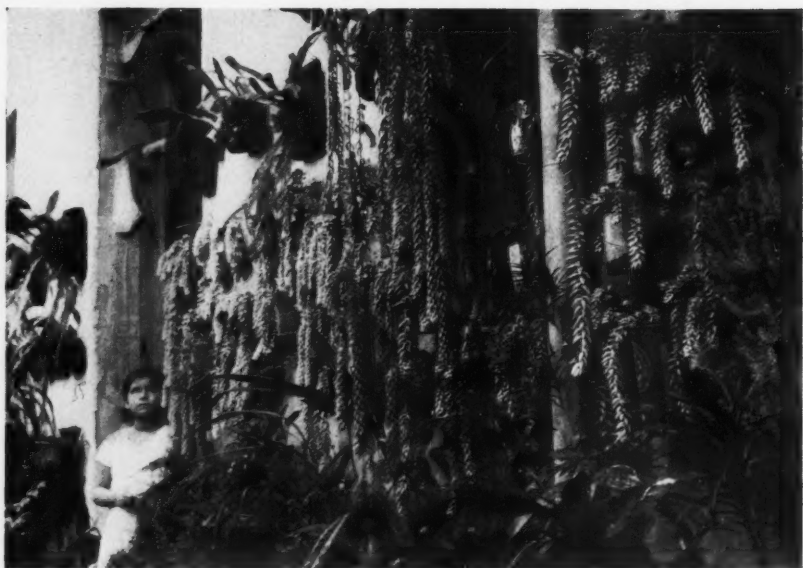
After following more or less blindly the general direction of the slough our boat finally parted almost abruptly the last of the phragmites grass and we found ourselves on the edge of a small wooded lake of perhaps one hundred feet in breadth. Along the east and south shores the jungle came up like a dark wall and from it the cocoa-plum trees swayed over the water under their prodigious load of orchids. I had never before seen this species (*Epidendrum anceps*) one-tenth so abundant. Their plummy and luxuriant foliage adorned every bough and snag that reached out to the light. The clusters of small yellow blooms emitted a most peculiar odor that filled the whole air with its pungent tang.

On a promontory at the south end of the pool there stood a cluster of canes of one of the finest plants of the swamp—the scarlet-flowered *Hibiscus coccineus*. Its several large flowers were fully as broad and as brilliantly red as are those of the common *H. rosa-sinensis*, so familiarly seen along Florida avenues. These blossoms were simply dazzling in their brilliance and glared out like flaming stars across the pond.

But the crowning glory of this secluded area was yet to be seen. And indeed, it was a sight that I shall long remember. We were suddenly startled by a furious commotion off to the right, as with a thrashing and splashing of wings a lone water-turkey arose from the surface. In a frightened ascent it winged up and over the swamp. But our eyes did not follow its flight. There, just beyond the still ruffled water lay a sight of exquisite beauty. Fringing the west margin of the pond and with a background of tropical foliage there stretched an extensive colony of iris (*I. savannarum*). The many gorgeous blue flowers held proudly erect sparkled iridescently. The superb beauty of this landscape was no doubt set off by the greenery in the rear where the thalias (*T. divaricata*) massed as an ideal background their fresh banana-like leaves.

As we sat there motionless drinking in the beauty of the scene all was silence save the rattling of the reeds and the splashing of fish in the water. Over the surface of the pond peeped hundreds of yellow pea-like flowers arising from the submerged feathery streamers of a fine bladderwort (*Utricularia foliosa*). Along the shallows were masses of another small-flowered aquatic (*Isnardia repens*), and spotted here and there were the showy purple blossoms of a rare water-lily (*Castalia elegans*). Now and again the breeze would sweep across the pond, rattle the reed grass and turn up the red under surface of the lily-pads. The iris tossing to and fro sparkled gloriously in the sunlight. And the large leaves of the thalias, fanning and twisting, presented a background of exotic loveliness. Permeating the whole air was the peculiar fragrance of the orchids.

(Concluded on page 50)



*Eric Walther*

## A Donkey's Tail

ERIC WALTHER

*Botanist, Golden Gate Park*

ORDINARILY, we should consider such publications as the *Cactus and Succulent Journal* the proper place for publishing items as the present one. However, today's tale began here in January, 1927, with the publication of one of our photos taken in Mexico on this other tale. At that time the unique succulent in question had to remain unidentified and unnamed, except for the very appropriate vernacular name, "Cola de Burro," meaning "the tail of the donkey." Entirely aside from the scientific interest such an unknown subject holds for the systematic botanist, whether working on the particular group involved or not, this item seemed to be of promise as a novel and ornamental basket-plan for indoor culture.

For nearly three years said caudal appendage continued to be a mystery and puzzle, and a challenge as well to both botanist and cultivator. Only just now has the skilful care of Dr. Meredith Morgan, of Richmond, California, led to the production of flowers and so permitted of the final disposition of this botanical puzzle.

Production of flowers seems to depend upon size and maturity; for apparently our donkey-tails must be at least three feet long before they will bloom. Botanically, the mysterious novelty belongs into the genus *Sedum*, so highly developed in Mexico where it is represented by a large number of unusual forms, the new one here discussed being one of the most striking. Careful survey of all the avail-





Eric Walther

*Sedum Morganianum* E. Walther; flowering shoot, app.  $\times 1$  on left

able literature failed to reveal any prior name for this distinctive species, permitting us to commemorate the clever grower in its specific name by dedicating the new species to him. For a detailed description we refer our readers to the "Cactus & Succulent Journal," and here content ourselves with saying that the species in question is somewhat reminiscent of *Sedum allantoides* Rose, but differs from that in its distinctive habit of growth, the sharply pointed leaves, its fewer, larger flowers borne on longer footstalks, the rose-colored petals and its bright red carpels.

Our new species of *Sedum* should

soon become generally available for every one of its most readily detached leaves will give rise to a new plant if given half a chance. Even the poorest of Mexicans appreciate the decorative qualities of our donkey's tail, as is evident from the picture on page 75 of the January 1937 issue of this Journal, so that it seems inevitable that this should become equally well known here. We close with the final caution that the plant should scarcely be expected to survive our winters out of doors, except perhaps in Southern California or Southern Florida.

## Rhododendron Notes

*Rhododendron Chapmanii* A. Gray  
(See page 49)

We are indebted to Mr. C. D. Beadle of Asheville, N. C., for our first plant of this uncommon Florida rhododendron. A fine small nursery-grown plant was received from him in the late summer of 1936 which produced flowers the following spring. The next plants were collected from the type locality through the cooperation of Mr. G. A. Russell of the Bureau of Plant Industry. These latter plants were the typical clumps, with old stumps that showed evidence of past fires. The soil shipped as the "ball" seemed almost pure sand, ashy gray, and covered with a thin top layer of black humus.

Part of this soil was removed from the clump and mixed with the prepared soil of the bed. The latter is a rich, acid, mica schist in which liberal amounts of peat moss had been stirred to a depth of 18 inches. Great care was given in setting the plants in place and keeping them uniformly moist to promote good root growth.

The first winter passed safely with the fortunate accompaniment of mild temperatures.

As might be expected, a few of the clumps did not establish themselves well but only one died. The remainder all made excellent growth and those carrying flower buds developed these. The inflorescence in the accompanying picture is natural size and represents an average size head. In effect the flowers are a rosy white with the greatest concentration of color in the base of the tube and in the deep rose-colored dots at the base of the upper lobe.

The illustration gives a good idea of the character of the inflorescence and the general style of the flower which is not unlike those of *Rhododendron minus* and *R. carolinianum* except that the tube is much more definite and that the lobes have a crisped, wavy character that makes them gayer.

In the Journal of the New York Botanical Garden (Vol. XXII, No. 253, pp. 1-11) there is an interesting article by Winifred Kimball, concerning Doctor Chapman, for whom the rhododendron was named. In it is recounted (p. 9-10) the incident when Dr. Asa Gray visited Doctor Chapman and was taken to see *R. Chapmanii* in its habitat, although the plant was nameless at the time. On seeing it, Gray "looked at it several moments, then he knelt down and studied it closely. When he arose he came and offered me his hand. 'You are right,' he said. 'I never saw this species. I congratulate you on *Rhododendron Chapmanii*.'"

Gray's technical publication of the species appears in the Proceedings of the American Academy, Vol. XII (1877), p. 61.

The collected plants have made most of their growth on the existing wood and have shown little inclination to make new shoots from the crown. To induce this, it may be necessary to cut them down again. The nursery plant has made excellent woody growth and gives promise that it will develop into as fair a bush as either *R. minus* or *R. carolinianum*.

Although the flowers appeared to set seed capsules, these failed to mature and the partially developed pods contained no seed—only chaff, as often happens in other rhododendrons. It seems probable that another year's



*Lilian A. Guernsey*

*Rhododendron Chapmanii*

flowering may be more fruitful, especially if the flowers are pollinated by hand.

What the ultimate limits of hardiness may be, only time will tell. The present winter with a minimum, up to January 15, of 16° F., has left no mark upon the leaves. What may have happened within the flower buds only April will reveal.

What the plant may provide as a potential parent for a race of rhododendrons for the South, one can not

guess, but surely if it can be combined with other showy species, there must be a good chance that its capacity for tolerating high summer temperatures would be continued in some of its progeny. In any case, whether it combines or not, in its own right it should be propagated by nurserymen, using seed or mound layering, until the plant is no longer a much talked of endemic.

B. Y. MORRISON.

Dr. Clement G. Bowers, Chairman.

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## Cyclamen

*(Concluded from page 42)*

in a loose soil which is rich in humus.

There has been a good deal of controversy over the necessity of giving them lime to make them bloom. Several years ago, we gave our plants a good dressing of lime, and they responded nobly with a fine crop of blooms, but the last few years we have not supplied the lime, and they have obliged with just as many or more flowers than before. So it seems, with this matter, as with so many others in the plant raising game, you can take it or leave it, and the results will be about the same.

## A Natural Garden

*\*(Concluded from page 45)*

Over us there appeared to fall a fleeting insight into the Master's

scheme, but with it came a maze of conflicting emotions. All about like a gorgeous picture lay the finest of nature's work, the plants and flowers, and yet in the midst of it all there lurked the dreaded moccasin. From back in the shadiness of the swamp came the gruff, throaty call of a great horned owl, "Hoo! Hoo-oo!! Hoo--Hoo-Ah-a-!" In all it seemed a fine exemplification of the wild, free harmony of nature.

Although it was with a feeling of regret that we turned back and the reeds like a curtain close to the rear of the boat, shutting off perhaps forever the grandeur of that favored spot, there persisted, nevertheless, a feeling of guilt as if we had ungraciously violated the sanctity of some hallowed shrine. At any rate it is a picture which I feel sure shall long linger in our memories.

## A Book or Two

*Hardy Bulbs, Including Half-hardy Bulbs and Tuberous- and Fibrous-rooted Plants.* By Lt. Col. C. H. Grey. Williams & Norgate, London. 1938. Vol. III. Liliaceae. 664 pages and 83 illustrations, some of which are colored. 45s.

With this volume Col. Grey brings his monumental work on bulbs to a close. It will remain a final authority for gardeners for many years to come. Too much praise cannot be given to the compiler and author for his careful work and research and for his critical comments upon the plants which he has grown in his own garden. And the large majority of these plants have been under his observation, so that he writes with first hand knowledge of his material, a point which makes these books of special value to all gardeners. It is to be regretted that the same amount of praise cannot be given to the illustrations. As this reviewer said in the earlier review of the previous volumes, they are not the type of drawings to be used in a reference book on plants. They do not as a rule delineate the subject clearly enough for identification; in this respect the drawings of groups which have a black background are very bad indeed. In most of the color plates the drafting is very good but the coloring is bad in that it is more decorative than faithful to nature. Reference to the plate of *Lilium Grayi*, for example, will illustrate the point. When one compares the drawings with the exquisite delineations of Mrs. G. M. Caroe in Salisbury's *The Living Garden* or with the differently executed but equally beautiful work of H. A. Thomerson in Stoker's *A Gardener's Progress* one can only regret that they

merely increase the cost of the work without enhancing the value.

From a reference point of view it would have been better to have listed synonyms after the correct name in all cases instead of in only a few, even though it would have increased the size of the volumes. Then too, color terms are too vaguely used in some cases; for example, to say *Allium Schoenoprasum*, the common chives of our kitchen gardens, has a "purple" flower gives the flower a plant-catalog color description which is altogether misleading. It is to be hoped that some of our nurseries will notice that the true *Allium tibeticum* is an attractive deep blue-flowered plant and not the drab, dirty lilac-pink weed which they are selling.

Most gardeners will agree with Col. Grey when he calls *Brodiaea uniflora*, syns. *Milla uniflora*, *Triteleia uniflora*, a charming plant but will not agree with him when he describes its milky whiteness as "delicate lilac-blue"; and will take him to task for not mentioning its variety *caerulea* (or *violacea*, whichever name is correct), whose dark violet-blue veined sky-blue flowers are even lovelier than the type. Farrer described its flowers as "milky-white." [NOTE: Have just noticed that the Horticultural Colour Chart gives *Milla uniflora* as an example of  $4\frac{2}{3}$  which is "delicate - lilac - blue"; therefore there must be three color forms of the plant, for among a planting of the white form in my garden there is a very small group of pale blue, much paler than the dark form mentioned above.]

As it is now the fashion to lump our old friends *Bulbocodium* and *Me-rendera* into the genus *Colchicum* in

spite of the fact of difference in appearance of the flowers, Col. Grey follows the botanists. But it is rather annoying to think one has found a new member of the genus only to discover later on that it is merely an old acquaintance under its new name. Would to heaven our botanical friends could bring themselves to settle down to their game and stop rearranging the cards.

Dealers in bulbs and their catalog compilers will not like to read under *Muscari armeniacum* "an excellent garden plant, which increases freely and makes a magnificent display . . . very well known as M. 'Heavenly Blue,'" especially those who list both names with a higher price on the former.

As *Tulipa dasystemon* of our gardens no longer has a right to this name which stands for an altogether different species and our old friend now becomes *T. tarda* and as both facts are clearly stated in the text, there is no excuse for labeling the drawing which appears on p. 587 "*Tulipa dasystemon* (of gardens)" with no notation of the correct name. *T. Hageri* is given its just dues as "one of the most attractive of rock-garden tulips." But the illustration shows it a poor narrow segmented thing and I have never noticed the "narrow, clear-yellow median vein" which the writer mentions; and he does not list its variety *nitens*, which is a taller and not so charming form. When we come to "*T. persica*," which we have known now for some years was a misnomer, the name having been used without any authority and seemingly without even a "Hort." after it, we find this: "*persica*, Willdenow — synonym of *T. patens*." Tulip species being a special weakness of the reviewer and this species very much so, some time has been

spent looking up data. Hall makes the following statement: "There is no authority for the specific name *persica*; the early writers like Parkinson called *T. Clusiana* by this name. Nor is any wild habitat known." Then he goes on to describe the flower as we know it. He makes no mention of *T. patens*. He repeats the same statement in 1935 in an article on Tulips which appeared in the R.H.S. Journal. Grey gives the authority for the name *patens* to Agardh. But the tulip he describes under this heading is NOT our "*persica*," for he says the flowers are "greenish-white and yellow," makes no mention of the pronounced characteristic of the foliage writhing flat upon the ground and says it blooms in April. As "*persica*" is one of the last to flower and in color is a hot, rich yellow with a strong flush of greenish bronze upon the exterior of the outer segments, we conclude that "*persica*" may still bear that label in our gardens. But we should like to know how and when he found that Willdenow gave the name and why a name given by Agardh (if the plant is the same) should be used, as Willdenow was dead in 1812, at which date the Swedish botanist was only twenty-seven and hardly experienced enough to be naming plants.

A. B.

*Horticultural Colour Chart.* Published by the British Colour Council in collaboration with the Royal Horticultural Society, Vincent Square, London, S. W. 1, England. 100 sheets in portfolio and explanatory leaflet. Price, 21s 6d postpaid. 1938. Some four years ago the R. H. S. announced the conception of this color chart and advance subscriptions were taken; now after many careful revisions and time spent upon the perfect-



tion of the color reproduction it has been issued—and it is well worth the waiting. There have been other charts before this but none that the reviewer knows of are as excellent as this one. Ridgway's is long out of print, expensive and must be carefully shaded from strong light as the color samples are in water-color. Owing to perfection in color printing, the colors are reasonably light-proof in this chart; it is inexpensive; horticultural examples are given for the colors; the colors themselves are larger in area, 1" x 1¼", and a black cardboard shield is provided to bring the square under observation into pure relief.

As this will be of paramount importance not only to all gardeners who desire to use correct color words to describe their flowers but to all others interested in any work in colors a more detailed review will be made than usually given. Each plate is devoted to one color, which is shown in four tones, so that there are 400 tones in the present edition. Besides these four blocks of color, each being numbered according to its intensity, each plate contains the following information: at top of page is the color name, below it the equivalents to it as given in the various recognized color charts; then a brief history of it; foreign synonyms; horticultural examples of each tone when this is possible, if the tone relates to a part of the flower only, as in trumpet daffodils, this is stated.

The present issue consisting of 100 plates will be followed by another hundred which may be inserted among the first plates by those who desire to group similar colors and shades. The numbering of the sheets is arranged so as to take care of this. The present issue contains the more important colors, leaving the less commonly used ones for the second series.

In order to show the scope of the work and to explain its use the following quotations are given from the leaflet which is a part of each portfolio. To show its world-wide use and make for an accurate color vocabulary: "There will thus be but one colour name recognised for each hue in the textile and all colour-using industries as well as by artists' colourmen. While, therefore, the colours chosen and names used have been selected primarily for the purposes of horticulture, the Royal Horticultural Society Colour Chart will also have a use and value far outside its horticultural scope. The greater precision which is so desirable will entail the use of a wider colour vocabulary, but it will be seen that new terms have been as far as possible selected from well-known flowers. Primrose Yellow, for instance, will not cover the whole range of yellows but will be assigned to one definite hue."

In explanation of the flower examples: "At first glance many readers may disagree as to the horticultural examples given for a certain colour, but it must be remembered that a flower seen in the garden against a background of green, grey or bronzed leaves is a composite colour impression. In matching, therefore, care should be taken that the specimen is not influenced by surrounding colours and the suggestions on the use of the chart should be carefully followed." Then follows a very detailed suggestion as to how the chart should be used.

At the present time descriptive color terms are used with even greater confusion than color names so an attempt is made to clarify their meanings. Color is defined as "the general name for all sensations arising from the activity of the retina of the eye and its

attached nervous mechanism." Colors vary in three ways only:

"1. **HUE** is that attribute or dimension by which one color is distinguishable from another, one which bears a particular color name but no qualification as to tone or intensity. That is, a color may vary according to the character of the color itself . . .

"2. **TONE** is that attribute or dimension by virtue of which a color is perceived by the normal eye as holding a position in a light-to-dark scale. That is, a color may vary according to its degree of lightness or darkness. (The terms 'value,' 'luminosity' and 'brightness' are synonyms for 'tone.')

"3. **INTENSITY** is that attribute or dimension by which the brilliance of a hue is revealed. An intense color is one which contains very little grey, that is a relatively pure color, pure because of its relative freedom from mixture with any degrading factor. That is, a color may vary according to the strength of the color quality."

Then other terms which are loosely used are here clearly defined. "**FULL HUE**: a pure color (intense color) free from the sensations of any degrading factor. **TINT**: a lighter tone of any color. **SHADE**: a darker tone of any color. ('Shade' has become very widely used as indicating simply a color, whether it is light or dark, pure or dull. In fact, its use has become so customary that it would be practically hopeless to attempt to obtain a general change, and the word 'shade' should be frankly recognised as possessing this secondary but incorrect meaning.)"

After this comes a suggestion as to descriptive flower terms. To quote in part: "In the description of flowers, the Committee suggests the following terms, including some already in common use:

"**SELFS**: Flowers of one colour.

"**CHROMATIC SELFS**: Flowers of varying tints and/or shades of one hue.

"**BI-COLOURS**: Flowers of two distinct colours.

"**POLY-CHROMES**: Flowers of more than two colours.

"**SHOTS**: Flowers with one colour apparently over-laying another.

"**GENERAL REPRESENTATION**: This special term may be used to denote the predominating hue or colour of a flower, or a group of flowers, and indicates that there are secondary hues."

Then follows an explanation regarding the number of the plates and of the colors. At the foot of each sheet is a page number, from 1 to 100, in light type. At the top right-hand corner of the sheet is a number in bold type; this number "refers to the position in the Spectrum Range of the hue shown on that sheet."

"The first 64 sheets comprise a complete Spectrum Range of Full Hues in correct sequence. The bottom colour on each sheet is the Full Hue and will bear the full hue number; 1, 2 and 3 being graduated tints of the Full Hue.

"The remaining 36 sheets in the first volume and all sheets in any further volumes will be related to one of the first 64 Full Hue Sheets. That is, they will be (lighter) Tints, (darker) Shades, or Greyed Hues of the 64 Full Hues."

This allows for a complete rearrangement according to Tint, Shade and Greyed Hue after each Full Hue when the final volume has been printed. As an example: take sheet 24 which is a Full Hue, its relative lighter tint will be 524, its tint will be 624, its shade will be 724, its deeper shade will be 824 and in cases where the Full Hue is greyed in any degree the number will be preceded by one or

more zeroes, as 024—a greying of the Full Hue, 0024—a double greying of the Full Hue, 0624—a greying of the Tint, 00624—a double greying of the Tint, etc. Thus the completed range will be very much easier to handle than other charts where one needs to turn page after page to find the right degree of color.

A few of the many interesting surprises to be found in the histories of the colour names should be quoted before closing. "Indian Yellow—used for many years in the paint trade, the name of which was introduced in 1735." "Saturn Red. A colour name for red oxide of lead which has been in use since the 14th century, Saturn being the alchemists' old name for lead." "Hyacinth Blue. A colour name which has been in general use for colour since 1390." "Mauve. This name was given to the first coal tar dye discovered by Perkin in 1856."

A. B.

*Floralia*. June Rainsford Butler. The University of North Carolina Press, Chapel Hill, N. C. 187 pages, illustrated. Edition limited. \$5.00.

This is a very pleasant book, but difficult of review. The author clearly defines her purpose, if one will accept a wish as a purpose, in her preface—"It is my wish that *Floralia*, which gives an account of some of the horticultural endeavors of two hundred years ago, will aid gardeners today worthily to reflect their finer spirits through garden activities."

The period that is described was a rich and fruitful one. Its personalities and its accomplishments, many and varied, are well chosen and well reported. The author writes persuasively and it is the hope of the reviewer that her wish may be granted in full measure.

*Botanic Gardens of the World, Materials for a History*. Dr. C. Stuart Gager. 2nd Edition. Brooklyn Botanic Garden, 1938. This is No. 3 of Vol. XXVII of the Brooklyn Botanic Garden Record. 406 pages, \$2.50.

The records are arranged geographically by countries, Anglo-Egyptian Soudan to Venezuela; alphabetically by cities under each country.

Dr. Gager has attempted to bring together data that would give the salient facts in the history of each garden. His success has been limited only by the degrees of cooperation of his correspondents. The work is invaluable.

*The Garden Dictionary*. Edited by Norman Taylor. The Houghton Mifflin Co., Boston and New York, 1938. 888 pages, illustrated. \$7.50.

This is a new printing of The Dictionary that made its debut in 1936 and won for its editor a gold medal from the Massachusetts Horticultural Society. Its merits are no less than at that time and its availability, thanks to the lower cost, is vastly increased. It should be a standard volume for every gardener's shelf.

*The Gardener's Travel Book*. Edward I. Farrington. Hale, Cushman & Flint, Boston, Mass., 1938. 390 pages, illustrated. \$2.50.

This is precisely what its title suggests. Armed with it, any horticulturally minded or even any curious gardener will know most of the best places. If even a small percentage of persons who merely want to look in, can be converted to horticulture, possibly the loss of privacy will be sacrificed gladly, but one wonders.

*Hedges, Screens and Windbreaks.*

Donald Wyman. Whittlesey House, New York, 1938. 249 pages, illustrated. \$2.75.

This is essentially a recapitulation of tabulated data, some from first hand experience, some from observation, some from report. Like any other book of that type it begins like an essay and ends like an encyclopedia.

Dr. Wyman has little to say that has not been said before but not all in one place. His data are sound and his opinions worth listening to, although many one would not embrace if planting a place for himself. His prose style suffers somewhat from the compactness of its pattern. The subject matter covered is essentially northeastern and is not much fortified either by Professor Shepherd or Professor Mowry.

*Cacti for the Amateur.* Scott E. Haselton. Abbey Garden Press, Pasadena, Calif., 1938. 142 pages, illustrated. \$1.00.

In his preface, this author announces that this is a book intended for those "who have just recently discovered these grotesque yet beautiful plants." It is intended as an answer to many of the most elementary questions—"It is a compilation of data after years of experience in editing magazines and books on cacti." And so on . . .

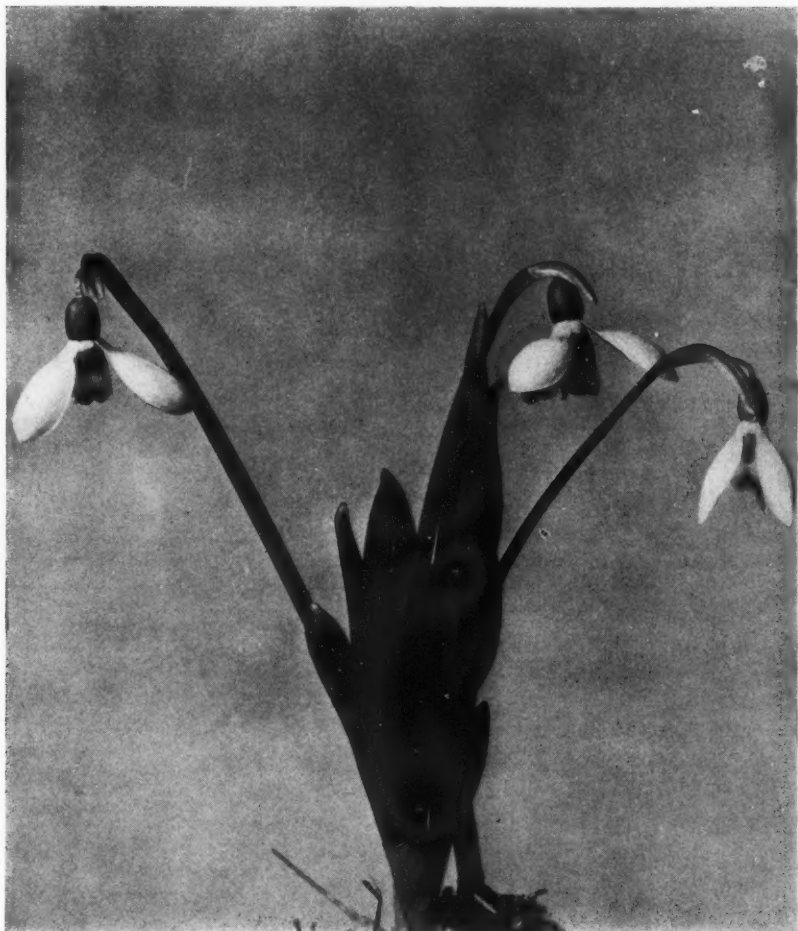
There is undoubtedly a place for an

elementary book addressed to just the audience our author has selected. This reviewer doubts if this book is the best answer, chiefly because of the curious arrangement. It has been our experience that the usual amateur in approaching an unfamiliar subject wants to know three things in approximately the following order: What does the plant look like, How do I grow it, What trouble will I get into? Only after these questions are answered does he care about all the matters that fill the first third of this book, because in spite of the fact that the first pages are devoted to "What are cacti," the answer is better found in the pictures than in the text.

The pictures are many and for the most part excellent, although the arrangements in bowls and pans are quite hideous, except for the exquisite "Night on the Desert," which is probably too restrained an arrangement to please the cactophile who seems to be moved largely by the instinct of accretion.

The two pages of minute color pictures are very good but scarcely worth the shouts of joy in the advertising.

The whole book in spite of all its efforts is much more like a reluctant detour made by a collector who thinks he should do something for the beginner who must be turned into a collecting specialist as quickly as possible.

*Lilian A. Guernsey**Galanthus Elwesii*

## FOUR EARLY SNOWDROPS

To make these portraits, entire plants were dug and carried to the studio. The picture of *Galanthus Elwesii* is the least accurate since the only specimens available at the time of photographing were by no means as large as they should have been. On the average, they are nearer the size of *G. cilicicus* shown on page 59. The flowers of *G. byzantinus* were chosen deliberately to show the interesting way in which tree petals alter their carriage as they age, the topmost flower being the oldest.

*Lilian A. Guernsey**Galanthus byzantinus*





*Lilian A. Guernsey*

*Galanthus cilicicus*

*Lilian A. Guernsey**Galanthus plicatus*

## Rock Garden Notes

ROBERT MONCURE, *Editor*

### *Noteworthy Rock Plants*

The writer is not a rock gardening purist but admits any plant to the rock garden regardless of whether it is native to rocky areas, highlands or lowlands, provided it is dwarf in stature, not invasive, or is in harmony with the proportions and plants of a particular garden. The following list of plants have done well without coddling and under rather adverse conditions.

*Erodium chamaedryoides roseum* (Heron's Bill) is a foolproof rock garden plant when planted in well drained and gritty sandy loam and thoroughly acclimated in Virginia in partial shade or full sun. A distant relative of the Geranium family, it forms neat miniature tufts of feathery leaves, in which nestle tiny elf-like deep pink flowers veined in red from April until frost. The entire plant scarcely exceeds a silver dollar in size and in my garden remains evergreen all the year. Reputedly it is a hybrid between *E. chamaedryoides* (Reichardii) and *E. corsicum*, both natives of Corsica, but nevertheless it has withstood twelve degrees below zero here and much lower temperatures in eastern Washington State and Ohio.

*Campanula porsharskyana* is such a favorite that I feel I must add a word in its favor. It belongs to the same group as *C. garganica* but is a much more vigorous grower with long prostrate arms almost hidden by clouds of blue-grey stars in May and June. If sheared and not allowed to form seed during the summer and provided with moderate moisture, intermittent bloom will appear from May until frost. Moderately good drainage is required, but it flourishes in either sandy or heavy

dry clay soil, although it cannot be expected to bloom profusely in summer in the latter location. Several catalogues are guilty of perpetuating a typographical error made several years ago when it was described as a native of Siberia, whereas actually it is a native of Dalmatia (Serbia) (Alpine Garden Quarterly, June, 1937), from whence it was introduced, I believe, by Mr. Walter Ingwersen. Incidentally, it received an Award of Merit in England in 1933.

*Euonymus nanus* is a useful and hardy dwarf shrub, prostrate and creeping in growth and attaining a height of from 12 to 18 inches. The narrow green foliage is practically evergreen, even in western Manitoba, but the flowers are inconspicuous. However, the combination of pink seed pods and scarlet fruit in late August at a distance have the appearance of most attractive flowers. For some reason this little shrub has been overlooked by most rock gardeners.

Two very hardy natives of the Great Plains area which are eminently suited for moderately dry areas in the rock garden are *Lepachys columnifera* (Thimble Flower) and *Chrysopsis villosa* (Golden Aster). The thimble flower resembles a miniature rudbeckia with drooping petals of rich yellow and an abnormally tall brown cone, the plants of the form in my garden attaining a height about a foot in July. The golden aster should be sheared in June and it will thus provide prostrate cushions of small golden rays in late summer and autumn.

Now that they are becoming available in quantity in this country, those two native anemones of the Mediter-

reanean region, *A. appennina* and *A. blanda* (native of sunny slopes in Greece), should be widely planted. They flower in March and April, feathery foliage and dainty starlike blossoms hugging the ground and braving the vagaries of spring weather with fortitude and grace. In formation the blossoms remind me of a miniature edition of Wild Chicory bloom, but of course more refined. *Anemone blanda* has been found in varying shades of blue, dark pink, white and pale pink, and *Anemone appennina* in blue, violet and double light blue. Both prefer sheltered locations with well drained woodland soil, where they have an opportunity to have an undisturbed period of dry dormancy in summer, and I believe they benefit by partial shade. Many of the failures with these anemones are due, I believe, partly to failure to plant the tiny black corms immediately upon receipt in September and failure to plant in locations where they may have a rest period without watering in summer, as in their native habitats.

R. C. M.

#### *Winter Notes on Some Rock Garden Plants*

For the gardener who must do his gardening whenever daylight permits and outside the business day, midwinter often provides the most leisure time for actually looking at his handiwork and of enjoying the beauty that can be found even then as well as the ineffable satisfaction of searching out the promises for spring to come. There often comes a day with a fine sun overhead and a mild air, even if the earth itself be frozen firmly.

The rock garden, always a grand place for myopic pleasures, is as good a spot as any to begin and some newly

acquired campanulas were counted over appraisingly one fine week-end.

*Campanula portenschlagiana*, the oldest resident, always makes broad tufts of new leaves in the autumn which yield most unwillingly to cold, their only obeisance so far being an overarching curve to the leaf stems, with never a hint of red or purple save in the innermost core. *C. muralis*, of which one most often thinks next, is utterly flaccid, with *C. fenestrellata* quite like it in a miniature edition.

*C. pulla*, which had been fresh and green enough in autumn, looks ragged now with almost leafless slender stems but promises of fresh growths from the crown. *C. pulloides* is much like it with a few green rosettes on the tips of shoots. *C. cochlearifolia* and its white form seem almost as weary, like chickweeds partly weeded out but not discouraged.

*C. Miranda* with many shoots still well clothed with green leaves brown-flushed by cold shows innumerable shoots ready to grow and another clone from British Columbia, taller and twiggy, shows only a faint flush of tan, not brown.

Much more clever and quite safe from innuendo are the sorts that go deciduous. *C. Raddeana* has lost all its leaves which in summer look quite firm and hard, and now shows only the youngest undeveloped leaves in the heart of the rosette, their stems all red and dull purple. *C. collina* is quite deciduous, as is *Profusion*, which has red-toned crowns. *C. Tomasinianus* is entirely out of sight save for one or two red thread-like shoots. *C. glomerata acaulis* shows only purplish petioles from all its vigorous summer.

There remain the true rosettes. *C. Sartori* is minute, perfect and quite larger. *C. porscharskyana* is leafy green. *C. pseudo-Raineri* is green, but

enough to hide the rosette form and look more like an evergreen tuft. The gem of the lot is *C. planifolia* with rosettes as fine as a saxifrage, leathery, dark green with undulate margins, so trim and fine that one is almost indifferent as to whether it flowers or not.

From it, one passes easily to the lovely Elliott's variety of *Saxifraga marginata* with clustered rosettes three-eighths to one-half an inch in diameter, their margins clearly dotted with white flecks and their innermost young leaves flushed with dull pink and brown. In contrast, a seedling clone from *S. aizoon* shows dull rose flushes only on the tips of the oldest leaves.

The groups of species and forms purchased as representatives of the Kabschia section are difficult to describe and yet all are exquisite in their winter aspects. If one will think of them as infinitesimal evergreens, some with almost needle-like leaves, some with fat broad leaves that make rosettes at the tips of the shoots, all so closely pressed together that they look like mosses, one will have some notion.

Of those that look most prickly, there are here three forms of *Saxifraga Burseriana* *major*, *crenata* and *sulphurea*. The first, *Burseriana major*, has developed since cold weather a faint, frostlike edge of gray and a hint of pink against the stems; *crenata* is quite glaucous with reddish leaves at

the tips of the shoots as if red flower buds were there; *sulphurea*, a tighter, finer-scaled plant than the other two, is full of pink and gray tones. *FredERICI-Coburgii* is coarser, almost like a phlox with reds and tans on the oldest leaves in the center of the tufts. *Obristii* is coarser still, with broader, flatter leaves, clearly white-dotted on their margins.

*S. Haagei* looks a little different from all its fellows here, almost like a green sedum with fat flower buds already showing at the tips of the strongest shoots.

The remainder are the most difficult to describe. *S. lilacina* makes a little cone-like mass covered with its rosettes of dull winter red, flecked with silvery white on the margins. *S. Irvingii* is as compact but is more irregularly mounded, like an old moss, its leaves flushed with purple and dull red, pointed with tiny flecks of chalky white along their edges. *S. Boryi* is flatter still, with flat masses of small rosettes of clear green with a winter wash of blue gray. *S. Baldensis* is even bluer, with a fleck of red in some of the oldest leaves. Pauline and *S. Petraschii* both show gray, even against the blue-gray stones of the scree.

Even when all these are jewelled over with their enamel-like flowers, these excellences of leaf and leaf pattern are not obscured.

## The Gardener's Pocketbook

*Prunus subhirtella* Miquel. Higan cherry. Variety Yae-shidare-higan. (See page 65)

The Higan cherry group, like all of the Japanese flowering cherries, has shown a strong tendency toward variation under diverse garden conditions, and has produced a large number of more or less distinct horticultural forms, differing remarkably in tree habit and flower characteristics. Seedlings may vary in habit from stiffly upright, through wide-spreading to decidedly pendulous, and the flowers, ranging in color from white to deep pink, and in number of petals from 5 to about 16, usually appear in early spring, but in some forms may also have a period of blooming in late autumn. In any large batch of seedlings one is sure to run across odd forms, and very occasionally something worth while perpetuating turns up.

At the present time there are only three varieties, or more precisely, three variety types, that are likely to be found in American gardens. The best-known and most popular is, of course, the pendulous variety, *Shidare-higan*, which appears in two distinct growth habits. The so-called "mushroom" type is generally top-worked on a mazzard stem 6 or 7 feet high, and increases very little in height, but in time may acquire a spread of 20 to 30 feet or more. The pyramidal type, considered by most landscape gardeners to be by far the more attractive, is usually grafted on piece roots of mazzard or budded low on mazzard seedlings.

The "autumn bloomer," *Jugatsuzakura*, not so well known, is a rather small bushy tree, finally about 20 feet

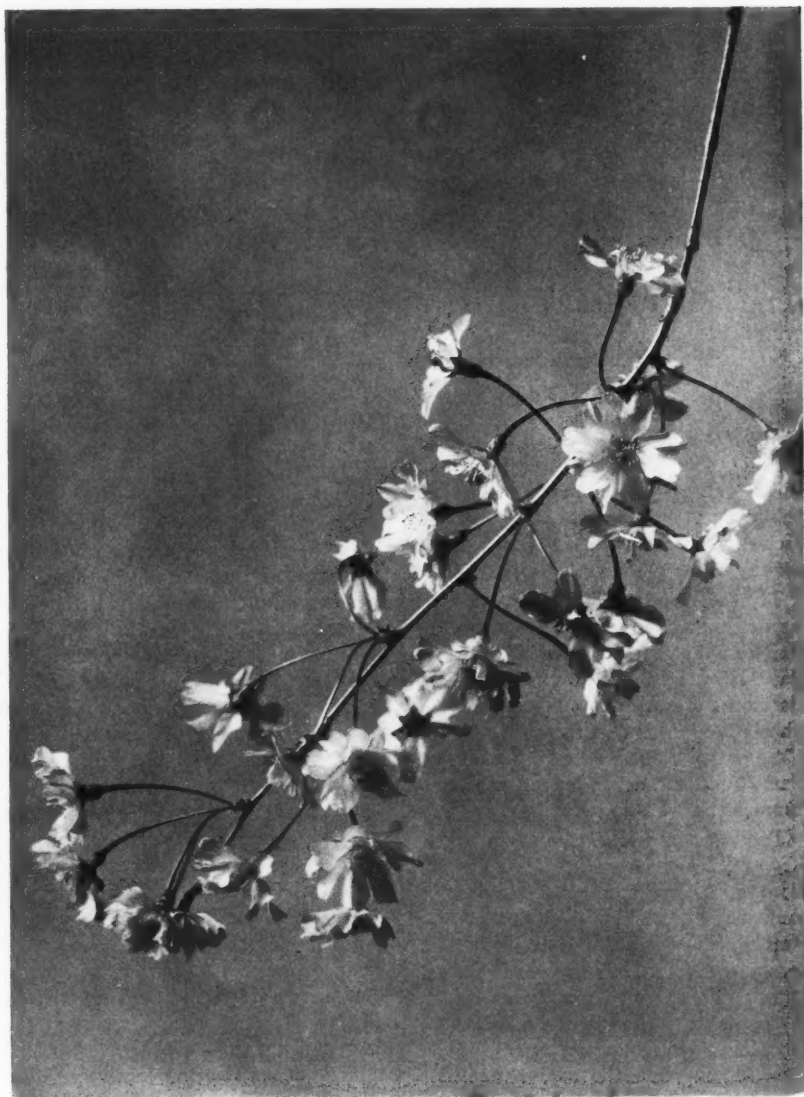
high with a rounded-flattened crown. The small semi-double-pink flowers are produced not only in spring but also in late autumn, that is, a certain number of flower buds respond to favorable weather conditions and burst open in October, when the day length is about the same as in March. If the autumn crop of flowers is large, the spring crop is likely to be small, and vice versa.

What has been considered to be the wild prototype of the species, *Benihigan*, the least attractive of the three variety types, makes a rather large, upright tree with stout branches, and bears small umbels of usually pale-pink flowers. It is commonly found, as it should be, only in parks and large estates.

Among those forms which have been more or less on trial, so to speak, is the subject of this note. As indicated by the Japanese name, this is a double-flowered form of the well-known pendulous higan cherry, *Shidare-higan*, and appears to be identical with that variety except for the flowers, which are not objectionally double, but have just enough extra petals to give the clear-pink flowers a little more body. It is quite within the bounds of possibility that in time the single-flowered *Shidare higan*, with its almost too ethereal sprays of delicate pink flowers, may be supplanted in large part by the more substantial *Yae-Shidare-higan*. The flowering twig illustrated was presented by Mr. Peter Bisset, of the United States Department of Agriculture. The tree from which the twig was taken is established in Mr. Bisset's garden in Chevy Chase, Md.

It has already been offered by at





Lilian A. Guernsey

*Prunus subhirtella* var. *Yae-shidare-higan*

[See page 64]

least two nurseries, one on the Pacific Coast and one in the East, and appears in the catalogs as a variety "flore pleno" of *Prunus subhirtella pendula*.

PAUL RUSSELL.

Washington, D. C.

*Hippeastrum decoratum* Lemaire (See page 67)

The flowering of *Hippeastrum decoratum* Lemaire in early December brought to light a species all but forgotten for 75 years. Ch. Lemaire published a beautiful colored plate and a description of the plant in his "Le Jardin Fleuriste," vol. 4, pl. 338, in 1854. Since then, apparently, this publication has been cited only in "Index Kewensis" and "Index Londonensis."

The plant from which Lemaire took his description was supplied by M. De Jonghe, who also supplied the colored plate. M. De Jonghe, in turn, received his plants from his collector in Brazil, where it is reported from the States of Sao Paulo and Minas Geraes. Our plant, illustrated on page 67, was found at Sao Paulo, Brazil.

To judge by the silence of 75 years, *Hippeastrum decoratum* is a rare plant. Either that must be true or it has been confused with *H. psittacinum* Herb. (NATIONAL HORTICULTURAL MAGAZINE, April, 1938). In general appearance, the two are enough alike to suggest that possibility. Baker, in the "Handbook of the Amaryllideae," does not mention the name, nor does he include it by some other name. It is not listed by Sealy in Journal of the Royal Horticultural Society 62: 195, 1937. *Hippeastrums* make such poor herbarium specimens that it might be represented in some collections under some other name.

It has been suggested that this flower has an orchid-like appearance. Certainly, the mixture of the strong colors, red and green, suggests the color combinations so frequently found in orchids. The ground color is green, between Cosse Green and Neva Green. This becomes almost white near the edges of the segments. The outer inch of each segment is rich red (between Nopal Red and Garnet Brown), and each of the upper lateral veins is maroon margined with the same rich red. Toward the base, each segment bears, on either side of the midrib, a broad streak of maroon. The filaments are pure white throughout; the anthers are grayish purple. The style is white except for a reddish tint along the upper end.

The broadly trumpet-shaped, odorless flowers, usually two on a peduncle, attract attention immediately because of the near regularity of the inner and outer perianth whorls, which differ from each other, however, in the size of their component elements. The outer segments are about  $5\frac{1}{2}$  inches long and about  $1\frac{1}{2}$  inches wide. The uppermost one is only slightly larger than the others. The inner lateral segments are about one inch wide, and the lowest is about three-fourths of an inch wide.

The broad perianth tube is approximately one inch long and is open at the throat except for a ring of sparse, short, hairlike papillae. The style is fully as long as the segments, but the filaments are a little shorter. The stigmas are trifid but not nearly as deeply as in *H. psittacinum*.

The peduncle on ours is about 16 inches long and practically cylindrical. The pedicels are scarcely over an inch long. The spathe valves are about three inches long.

In vegetative growth, the plant is



*Lilian A. Guernsey*

*Hippeastrum decoratum*

[See page 66]

not easily distinguished from *H. psittacinum* except that it is smaller in all its parts. The leaves are about 18 inches long and about 1½ inches wide, strongly channelled along the midrib above, and keeled below. They are bright green above, slightly duller below. The globular bulb is three to four inches in diameter and is provided with a neck two or three inches long. The outer coats of the bulb are light brown, and papery in texture.

Without doubt, *H. decoratum* most closely resembles *H. psittacinum*, from which it may be distinguished by the much greener perianth, the longer, open perianth tube, the narrower inner perianth segments, and the trumpet-shaped flowers.

Among hippeastrum species, *H. decoratum* will not be included among the most attractive by many, nor will it appeal to those who consider modern hybrid hippeastrums the ultimate in development. However, those who like novel colors and form and graceful carriage will like it.

CLAUDE HOPE

*From the Northwestern Horticultural Society*

Christmas-berry, *Photinia villosa*, seems to be one of the lesser known shrubs here in the Middle West, in spite of its long season of attractiveness. In June white flowers resembling those of the cotoneaster are borne in profusion along its upright branches; in fall the leaves turn deep red and very attractive scarlet berries hang on the branches until late in winter.

It is a rather large shrub reaching a height of 12 to 15 feet with slender branches pubescent when young. Its glossy, deep green leaves are an added feature, an inch and a half to three

inches long, tapering at the end, finely and sharply serrate, hairy beneath.

*Photinia*, a native to Japan, Korea and China, is closely related to *Aronia* or chokeberry of our own country and *Stranvaesia* of China. There is another equally ornamental species, *P. serrulata*, with larger evergreen leaves, that is used in the South. The Christmas-berry itself needs a somewhat sheltered position in the North and plenty of sunshine. Although the berries ripen late they hang on as long as those of the winterberry, *Euonymus Bungeanus*. Both look best against a background of evergreens or some other equally effective background to set off the decorative berries.

Of the many valuable plant introductions by the late E. H. Wilson of the Arnold Arboretum, one of the most outstanding for its ornamental value is the silk-tree, *Albizzia julibrissin* var. *rosea*. It is also one of the least known, which may partly be accounted for by the fact that it has only recently been offered by the nursery trade.

The true *Albizzia julibrissin* is a tropical plant from the Orient with bright pink flowers which may only be grown in the South. Its variety, however, is deeper in color and much hardier, for which we of the northern states can be truly thankful. Seeds of the plant were first brought to this country from Korea twenty years ago and germinated at the Arnold Arboretum. One of this lot is still growing and is always of special interest when it is in bloom in midsummer.

It is exceedingly decorative whether in bloom or not because of its finely cut fern-like foliage; the leaves are twice compound with from 10 to 25 pinnae, each of which has 40 to 50 sickle-shaped leaflets bearing tiny hairs on their margins. At a time when



*Courtesy The Morton Arboretum*

*Photinia villosa*

[See page 68]



Courtesy The Arnold Arboretum

*Albizia julibrissin rosea*

there are few other trees in bloom, from July to September, the silk-tree produces flowers in stalked heads in the upper leaf-axils of the current season's growth. It is the long stamens which are conspicuous in this flower, being deep pink in color tipped with yellow anthers. With its flowers standing above the foliage as they do, it is unquestionably a specimen plant of rare beauty.

In the Middle West it probably will not attain a height of more than 10 or 15 feet, rather more of a large shrub than a tree, the branches being arranged to form a broad, spreading head. It will, of course, require a sheltered position where it will get plenty of sunlight and it will be wise to wrap the trunk with burlap the first two or three winters, but a plant

of such outstanding merit is worth this extra attention. Where the winters are not so severe, a height of 20 to 30 feet can be expected.

Although the arborvitae is justly popular among pyramidal evergreens in spring and fall, it has the disadvantage of assuming a dingy green hue in winter. Since this is obviously one of the chief reasons for using evergreens, the fact that this variety-loses its rich green color in winter is a decided drawback. As a way out of this difficulty for those who desire an Arborvitae hedge, let me recommend the Ware or Siberian Arborvitae, *Thuja occidentalis* var. *Wareana*. Other synonyms for this form are *T. occidentalis* var. *robusta*, *T. caucasica* and *T. sibirica*.

It is much lower and denser than





*Lilian A. Guernsey*

*Ilex pedunculosa*

[See page 72]

*T. occidentalis*, reaching a height of about 8 to 10 feet in this area. The variety was named for Mr. Thomas Ware, an English nurseryman, who produced it about 1850. A robust variety of pyramidal habit, the Ware *Arborevitae* forms a broad, shapely cone. The foliage is a rich dark green differing from the American *arbovitae* in being heavier and deeply crested. Its greatest advantage, however, is that it retains this color throughout the winter, thus rendering it admirable for hedges or foundation planting. With age it acquires an interesting, rugged habit.

A strikingly beautiful vine for trellis or wall is the Amur or porcelain ivy, *Ampelopsis heterophylla* var. *amurensis*, called *A. brevipedunculata* by Rehder in his Manual of Cultivated Trees and Shrubs. The changing colors of the berries are its most valuable attribute. Beginning with pale lilac, they pass through successive changes to pinkish green and finally to bright blue. Although many different shades may be observed, they are all harmonious in their color effect, the turquoise-blue predominating toward the end of the season.

It is a vigorous climber coming from northeast Asia. The leaves are three-lobed, coarsely serrate, dark green above, slightly hairy beneath supported on long, hairy petioles. The flowering season is in July and August, the colorful pea-like fruits, which are from a third to a half inch in diameter, coming during September and October.

ROBERT VAN TRESS.

*Ilex pedunculosa* (See page 71)

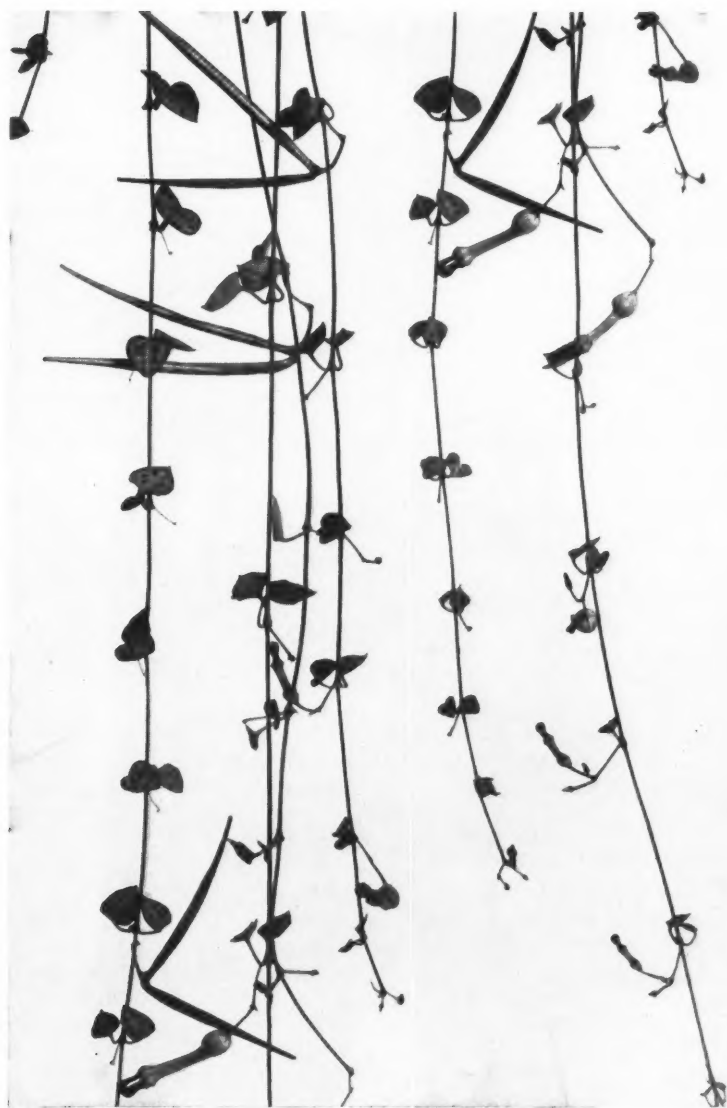
So many pleasant associations cluster about the word holly that the gardener who looks up a botanical text on the genus is very likely to set out on

an exuberant pursuit of the whole family unless he encounters first a poor or a tender representative. There is no doubt, however, that within the limits of their fruiting and their hardiness, the hollies contribute much to our available broad-leaved evergreens as well as our plants with showy winter fruits.

The Japanese species which is the subject of this note is more to be regarded as an evergreen than as a fruiting shrub. It is reported to grow to as much as 25 feet but our plants are much too young to indicate anything more than that we have the beginnings of a very handsome broad-leaved shrub that branches well to the ground. Some of the individuals have produced enough stems to suggest that the mature plant will appear more like a large shrub than a tree, some have only single trunks so that they may develop into tree-like habits.

The photograph is made from a plant growing in nearby Maryland and a lateral branch was chosen to show the short fruiting of spurs just below the strong shoots that annually extend the branch. The general style and carriage of the leaves is shown as well as the arrangements of the fruits on their flexuous stems that often fall partly within the foliage masses. The photograph shows approximately natural size.

The features that can not be shown in a photograph relate chiefly to color. The leaves in summer are a pleasant green, neither light enough or dark enough to differentiate their hue from most summer greens. With the advent of cold weather, there is a tinge of reddish brown on all the leaves but especially on those of the young shoots and twigs that gives the tree a livelier color value than one gets from many evergreens.



*Lilian A. Guernsey*

*Ceropegia Woodii*

[See page 74]

This trifling detail is not so unimportant as it might seem. Although one is not likely to be too captious about the appearance of any broad-leaved evergreen tree in the winter landscape when all evergreens are particularly welcome, there is an added satisfaction to be had from any plant that differs in hue from the dull, somewhat blackish green that is so common or the slightly tanned green that appears in so many conifers. Even if this tree had only black fruits that would be less conspicuous than the half-hidden fruits that it does carry, its winter leaf colors would be valuable.

The small plants best known to the writer are located so that they contrast with the clear unchanging light green of *Pieris japonica*, the dark green of *Ligustrum japonicum* and the glistening green of hemlock.

This is a holly that apparently comes with reasonable certainty from seed and after an initial year as a small plant grows with decent speed, if given a soil that is fairly well supplied with moisture and humus. Too much shade seems to produce a less twiggy growth, which means a poorer effect.

*Ceropegia Woodii* (See page 73)

At this time when various succulent plants are so much in favor, the gardener who has access to a good library is often entertained to find that plants which seem new and strange to him have been in cultivation for many years and have been recorded in various publications at intervals, suggesting that fashions in plants might be charted with greater definiteness than we often suppose.

Although this plant is no newcomer and has been known to this writer for possibly ten years, he has never encountered it, outside of botanic gar-

dens, except in homes which have it from the same source as his own. It appears in various commercial lists, so this failure is presumably his own.

According to Curtis' Botanical Magazine (Vol. CXXVI t. 7704) "This pretty species of *Ceropegia* was discovered by Mr. J. Medley Wood, the energetic Curator of Durban Botanic Gardens, in February, 1881, hanging from rocks on Groen Berg, Natal, at an altitude of about one thousand eight hundred feet. In 1894 Mr. Wood sent a living plant of it to Kew, and subsequently it has been introduced into other establishments."

Various other texts suggest that the plant may either clamber over other vegetation or along the surface of the ground.

The writer first saw it as a pot plant, an old specimen with a large tuberlike root from which depended many slender stems clothed with paired heart-shaped leaves that resemble those of the cyclamen in their color and general pattern of dark green and silvery green blotching. At the leaf nodes grew small dull white tubercles of various sizes, which when regularly produced suggest the reason for the English name, rosary vine.

A few bits from this present plant served as the basis of propagation, for they were chosen with the little tuber attached and planted in a new pot. Roots quickly developed and shoots that soon grew long enough to produce tubercles of their own.

As a matter of convenience, the young plants were transferred from the house to a cold greenhouse pit for the summer. Here with their backs to the concrete wall they soon grew over four feet long with handsome leaves and, after midsummer, curious half-translucent pale pink flowers with purplish-black staminodia. A few de-

veloped seed capsules, but none of these matured through no fault of their own.

As cool weather approached, the leaves and stems took on a pinkish hue, which made the foliage display even more beautiful than before. This delay, however, was no advantage, because when the plants were brought again into a warm dwelling, the oldest leaves dropped off, leaving the stems quite naked. Very few flowers developed after the change in temperatures and the fruits that had begun to develop dried out, all showing that the change had been too great.

As an experiment, several portions of stem with tubercles were placed in a flat filled with a mixture of sand and peat and left in the cold pit all winter. Here the temperature rarely goes below 20° F. All of the cuttings rooted and all died save one which came through the winter and grew successfully in the spring.

As far as can be observed here, the natural impulse of growth seems apparent about April. Growth continues vigorously unless checked by some accident, until November. Presumably it might be extended if a moist greenhouse were available. If conditions here are a guide, this is a plant that can develop well without much direct sunlight, provided there is enough ordinary light. Plants growing by a north window became somewhat etiolated. Not enough plants have been grown to warrant an arbitrary statement, but there seems to be some evidence that plants grown on a short bracket are better than those that grow in a free hanging basket.

*Abelia*, Edward Goucher (See page 77).

Ever since *Abelia Schumannii* flowered in the greenhouse and then

proved a complete failure out of doors, it has been a matter of sufficient regret that the first failures were not accepted as final. In the trials that followed, the results were all the same, although every type of exposure and mild protection was devised and a considerable number of soils were used as well. These failures were made even more regrettable by reports from the Southern States, indicating that uneven ripening of the wood made its cold hardiness variable even there.

The particular charm of *A. Schumannii* lies in its flowers which are much larger than those of the familiar *A. grandiflora* and are of a clear and pleasant lavender pink hue. The plant grows well and is free and continuous in bloom.

The late Edward A. Goucher, then at the U. S. Plant Introduction Garden at Glenn Dale, Maryland, pollinated flowers of *A. grandiflora* with pollen of *A. Schumannii* and obtained a small number of seeds from which ten plants were raised.

The seedlings were kept in cool greenhouse pits until they were large enough for six inch pots, by which time they had all flowered and all had produced enough good wood to make a winter reading reasonable. They were planted out in the summer of 1935 and have remained out ever since with no evidence of any more damage than occurred in plants of *A. grandiflora* planted nearby. There have been several periods of near zero weather and several single nights of sub-zero weather. Damage has always been similar to that on *A. grandiflora* or any other shrub on the border line of cold hardiness. The evergreen leaves either drop or are burned; the feeble shoots and twigs die and the young tips of vigorous new shoots are killed back to hard wood. In plants that

break out in new growth quite freely, this type of injury is not serious but disfiguring until the new growth obscures it.

For the most part the seedlings from this cross may be said to resemble *A. grandiflora* rather than *A. Schumanni*. They are almost as hardy and as evergreen and differ chiefly in their larger flowers, which in several cases are almost as deeply colored as those of the pollen parent.

After observation under field conditions, one plant was chosen for clonal propagation and named Edward Goucher in memory of the originator. From such evidence as has been gathered, it appears that *Abelia*, Edward Goucher, will be useful wherever *A. grandiflora* can be used and will provide continuous flowering over approximately the same period with abundant lavender-pink flowers supplemented by the persistent calyces that are tinged with red and make almost as much show as do the flowers.

*Iris lupina* Foster (See page 79)

Some one, writing years ago about the *Oncocyclus* irises, confessed to have spent more time trying to please them than he had expended on any other group of plants and with success almost in inverse ratio. The present writer is no such faithful amateur and admits at once that his chief ambition has been to see as many *Oncocyclus* species as possible just once, to get a photograph and, if possible, an herbarium specimen.

The present picture of *Iris lupina* shows that sort of a garden episode and nothing more. The roots came from Turkey and produced a reasonable growth, planted in a frame where they were kept dry during the summer months and well into the autumn.

Then enough rainfall was allowed its natural course, to insure a start of root growth and of a swelling of buds before cold weather stopped all further development. In the spring, the frames were opened gradually and growth continued just as if the plants meant to be at home. As the roots were quite unequal in size it was not surprising that only two produced flowering shoots.

They were curious things and gave chiefly the impression of murky greenness although this was by no means their only color. The essential ground color is a greenish buff light enough in tone to suggest greenish yellow. The pattern of veins and blotches is of an ashy red brown that looks warmer in sunlight and duller in shadow, darkest along the mid-rib of the standards and almost velvety in the patch on the falls.

As can be seen in the picture, which is natural size, the patch of hairs on the falls and below each style arm are not conspicuous as they are not deeply colored, but they are diffuse and in a spreading patch as is true for the section to which this species belongs.

In Curtis' Botanical Magazine, Mr. J. G. Baker writes the text to accompany the figure, Tab. 7904 (1903) and says in part:

"This very interesting new *Iris* was sent to Professor (Sir Michael) Foster about 1886, from the mountains a few miles south of Kharput, in Turkish Armenia, by Mrs. Barnum, of the American Mission, who also discovered the *Iris*, which has been named after her, as well as other novelties. \* \* \* The Armenians call it the "Wolf's Ear," from the tawny tips of the outer segments as they emerge from the opening bud, and





*Lilian A. Guernsey*

*Hybrid Abelia, Edward Goucher*

[See page 75]

this suggested to Professor Foster its specific name."

The colored plate shown there is of a much clearer color than in the two flowers seen here with a veination much lighter in tone than ours and nearer pink than brown. Since color values and patterns do vary in these plants, it may be only that our plants were of less attractive qualities, if one may measure attractions in flowers that charm through their curious patterns and colors rather than by the more obvious appeal of many other species.

*Dracocephalum nutans.*

Although I have a special fondness for any dragonhead, I decided early in their acquaintance that seedlings of *Dracocephalum nutans* showed a promise that here was an interesting plant to watch. They grew well in the dry summer of 1937 and by the following winter made sturdy plants six inches in height and of equal spread. The small round leaves took on purplish tints after frost and the plant remained surprisingly evergreen holding its foliage all through the winter immune to cold and winter wetness. This winter resistance is remarkable in a plant that appears of ordinary herbaceous character.

Growth began very early in the spring and by May reached eighteen inches. Flowering began in late April, though an unusually balmy March encouraged early spring growth in 1938. However, its early start makes it a choice companion for all the yellow flowering spring bulbs from daffodils to late cottage tulips.

Its long tubular flower pinched at the base is shaded from dark lavender to blue; the interior is dark spotted. The hollowed lobes extend three inches wide. Prominent bracts are a dark

winey-lavender giving a dark caste to the flower mass especially from a distance. This casual effect of purple is a new and valuable color note for the early spring border. Flowers are numerous in axillary whorls flowering up and down a six-inch spike. The color effect was still good into June.

The plants were left for seed production and probably due to our wet summer by July first 75 per cent of the plants were killed by a dry rot fungus attacking at the base of the stem. However, by September first numerous seedlings had amply filled up the area. For culture I would suggest open sun with a light soil and good drainage. Cutting back by the middle of June would be advisable.

I have yet to seek out the history of its discovery in Central Asia and its introduction sometime before 1930. It is still practically unknown in gardens, but I predict that some day it will be well known and well liked.

BERNARD HARKNESS.

*Editorial Postscript.*

By the time this magazine has reached you, you will have already had word of the actual publication of the long awaited Lily Year Book and the long overdue 1938 Daffodil Year Book. If you have not already ordered your copies, order at once from the Secretary with a dollar for the first and fifty cents for the latter.

As you have leafed through the pages of this issue, you will notice a new department with the rock garden its theme. If you have questions or contributions, send them to Mr. Moncure at the Secretary's office.

The section devoted to Rhododendron notes has but a single piece this issue. Contributions for this section are eagerly desired.



*Lilian A. Guernsey*

*Iris lupina*

[See page 76]

Preliminary arrangements have been made to secure a considerable amount of new material about ornamental plants in certain parts of Florida, which will be supplemented by excellent photographs, the same excellent sort that are making our journal world famous. If all goes well, the first will appear in April. Now that so many gardeners visit Florida in winter, these pictures and notes will be of value to traveling gardeners as well as Floridians.

Among the projects for the spring season, is the description and photographing of a fair set of crocus species, which we hope will be sufficiently completed to present in the July issue. If

the job is well done, you should find it necessary to make a large addition to your crocus order. With the crocus pictures there will also appear more muscari pictures to complete the set published in 1938. Various other small bulbs are also waiting their turn.

Succulents too will have their share of attention, particularly in the more easily available species and forms of agave, gasteria and haworthia. Mr. Hope will have other papers as detailed and as valuable as his present paper on kalanchoes.

It would be nice to say with some certainty that there would be additional papers on flower arrangement. Maybe so, maybe not.



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